

FINANCE

COMMERCE

ENGINEERING

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CONDITIONS IN CHINA'S OCCUPIED
REGIONS

Vol. XXXV

JULY, 1939

No. 7

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The Far Eastern Review

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FAR EASTERN CROSS-CURRENTS

THE present stage of the Sino-Japanese Affair is characterized by the rise of anti-British movements in Japanese occupied areas. First anti-British articles began to appear in the press in these areas, then towns and villages began to be placarded with anti-British posters.

Since the Japanese blockade of the British Concession in Tientsin the movement became especially virulent. The British Consulate in Tsingtao was attacked by Chinese mobs, who were dispersed by Japanese bluejackets. A poster, which was drawn by the City Government of Tsingtao and very insulting to Great Britain in the eyes of the Chinese, was disapproved by the Japanese authorities and businessmen there. Anti-British demonstrations were held almost in every town in North and Central China.

The Japanese authorities contend that these movements were sponsored by Chinese whose hatred against the Chungking Government might well develop into a hatred against Great Britain who is alleged to be assisting that Government.

On July 14, however, a monster anti-British meeting was held at Hibiya Park, in Tokyo, where 50,000 people gathered. Five thousand excited demonstrators of a group of 15,000 tried later to crash through the gates of the British Embassy, and a possible serious incident was prevented by heroic efforts of the police and gendarmes.

Why Great Britain is singled out as an enemy of Japan and the new China is difficult to understand for neutral observers. Other neutral Powers are also assisting the Chungking Government, and Japan is receiving supplies from neutral Powers. However, it is the British strength, political, economic and otherwise, that is overwhelming in China. Japanese people are obsessed with the idea that Great Britain is in a position to change the trend in China. There may be no time for Japanese soldiers to consider whether it is the fault of Great Britain or of Chinese Nationalists if their comrades are killed by an attack from behind property marked with the Union Jack. Japanese people cannot forget that the Chinese dollar only could maintain the value of 8d. so long as the support of Great Britain was forthcoming, and dropped to 6½ when it was withheld. Other Powers are indeed supplying materials to the Chungking Government, but how could it pay without the financial facilities accorded principally by Great Britain? In the minds of Japanese people the British assistance to Chungking is the *sine qua non* of the Chinese resistance.

Great Britain may lend support to any party in China she likes. She has a perfect right to defend her interests in China acquired during the past century. In such difference between the viewpoints of Japan and Great Britain there looms danger.

Never since the outbreak of Sino-Japanese hostilities has the spirit of reconciliation been more required of the two countries. Moderation on the part of both countries is urgently needed. Informed people are aware that anti-British movements are largely a mere stage show. However, human beings are apt to be governed by force of circumstances, and mass psychology is likely to go beyond the control of the authorities.

It is interesting to recall, especially at this juncture, the description, cited in the Observations of the Japanese Government in support of its arguments, in the Lytton report on the anti-foreign activities in China. The report stated:—

“Having started upon the road of international co-operation for the purpose of solving her difficulties, as was done at Washington, China might have made more substantial

progress in the ten years that have since elapsed had she continued to follow that road. She has only been hampered by the virulence of anti-foreign propaganda which has been pursued. In two particulars has that been carried so far as to contribute to the creation of the atmosphere in which the present conflict (Manchurian Incident) arose, namely, the use made of the economic boycott and the introduction of anti-foreign propaganda into the schools.”



By a vote of 200 to 188, the House of Representatives rejected the Administration's neutrality bill on June 30 by writing into it the arms and ammunition embargo against warring nations. Under the new embargo clause, the United States must ban the sale of arms and ammunition to belligerents once the President or Congress declare that a state of war exists between countries involved. The main difference in the new bill compared with the former Act is the insertion of the clause specifying that the exports of “war implements” to the belligerents are not included in the embargo. It would appear that “war implements” include motor-cars, aeroplanes and other items which are not to be considered as “war weapons.”

Supporters of President Roosevelt were reported to be furious at the action of Congress, which was described by Mr. Cordell Hull in a strongly worded statement as a matter of regret and disappointment from the standpoint of peace and the best interest of the United States in international relations.

Chinese are apparently greatly concerned over the fate of the neutrality legislation. According to a United Press report from Chungking, Chinese circles asserted that the enactment of the bill would “inevitably disastrously hamper those nations which the United States considers friendly and which the majority of the American people would wish to support in the event of war between the democracies and the totalitarian Powers,” and that, “Should Congress enact the present neutrality legislation, it would be tantamount to classifying America as a second rate Power in world diplomacy.”

It may be recalled that George Washington counselled the American people to avoid “entangling alliances,” and other leading statesmen advocated isolation. However, in these days when the interdependence of nations has become closer, the interests of a nation cannot remain unaffected by controversies between other nations, and there have been instances in the past when America took an active part in other nations' affairs and intervened in other nations' war. What is needed for the American people in this turbulent world is a clear judgment of the balance between the American interests at stake and the benefit of strict neutrality.



In view of the Senate's action on the silver purchasing powers of the Treasury Department, it comes within the scope of possibility that the United States will discontinue purchases of foreign silver. For the time being, however, silver purchases will continue, as Treasury officials pointed out, because the Silver Purchase Act of 1934, under which foreign silver is purchased, remains law.

The Ministry of Finance sources at Chungking revealed that China was not worried over this possibility. Government circles said that “of course, we would prefer to have a ready market for our silver all the time,” but added that the action of Congress

had been anticipated and proper precautionary measures taken, the United Press reported from Chungking.

Mr. Paul V. McNutt, U.S. High Commissioner for the Philippines and possible Democratic Presidential candidate in 1940, advocated on June 30 the retention of American sovereignty over the Philippines "to preserve peace in the Orient."

Addressing a huge crowd he predicted that there would be trouble in the Far East for at least a generation if the United States withdraws from the Philippines. The maintenance of American sovereignty over the Islands is necessary both as a matter of United States foreign policy and for the economic preservation of the Islands, he said. The Philippines, he continued, are surrounded by nations with overflowing populations anxious to expand and invade the Philippines. Withdrawal from the Philippines will mean "the loss of our voice in Oriental policy and the blocking of United States trade with China," he added.

Commenting upon the proposal of Mr. McNutt, several members of the Senate Insular Affairs Committee said that the isolationists and the Republicans would bitterly oppose the suggestion, while even those groups sympathetic to it would prefer waiting for the outcome of the Japanese campaign in China before taking up the question.

Senator Bennett Champ Clark, Democrat of Missouri, said that the retention of the Philippines would never be approved either by Congress or the Country, and that the Flag of the United States alone would no more prevent an attack on the Philippines than the British Flag would likely protect forever Hongkong and other British interests in the Far East.

Senator Robert P. Reynolds, Democrat of North Carolina, and two high ranking Republican members of the Insular Affairs expressed similar views.



On the night of July 9, Sunday, Mr. Wang Ching-wei again made a peace appeal. This time his voice was on the air through an undisclosed radio station. He recalled the teachings of the late Dr. Sun Yat-sen and how the Father of the Chinese Revolution attached importance to Sino-Japanese co-operation. He reviewed Sino-Japanese relations since the Manchurian Incident and told how he sought a rapprochement of the two countries, as well as his relations with Generalissimo Chiang Kai-shek from earlier days of the Revolution to his secret flight from Chungking. He advocated that amity, and not enmity, be fostered between Japan and China. He said that a settlement based upon the Konoye statement of December 22, 1938, would not deprive China of her territory or independence.

Mr. Wang's views were warmly received by the Japanese press. The *Asahi* said that importance is attached to the next move to be taken by Mr. Wang Ching-wei and his followers, "who have severed relations with General Chiang Kai-shek. In case Mr. Wang Ching-wei's political convictions are translated into action, Sino-Japanese relations, which have grown from bad to worse in the past ten years, will be readjusted, with the anti-Japanese policy of General Chiang Kai-shek being drastically revised."

Naturally, Mr. Wang was bitterly denounced by Chungking. It seems that no one can be a patriot in China unless he is anti-Japanese. In times of war a cry for resistance sounds more encouraging than a discussion of peace to the ears of the people, who in reality want peace, and not the scorched earth. Many leaders of China have committed themselves to fight to the bitter end, and it is more difficult for them to save their country than to save face. Whoever he may be, whatever error he may commit in actual steps, still he is a true patriot who defies denunciation and dares to work for peace in the present day China.



The payment due on July 1 on the International Reorganization Gold Loan of 1913 by the Chungking Government was not made. The *Financial Times* of London predicted on June 29 in an article, "An announcement of a default on the Reorganization Loan and the six per cent 1934 Loan would not come altogether as a surprise."

"The Chinese Government, whose treatment of its creditors has been exemplary in the past, has been forced to default by its sheer inability to pay, and it is difficult to foresee any arrangements that are likely to provide for continued payments, in view of the

loss of the greater part of the Customs and Salt Revenues to Japan and the recent exchange crisis," the article concluded.



The Japanese Ministry of Finance promulgated in the end of June the New Exchange Law, which states that in order to limit the importation of currency the Ministry is enforcing the rule that only Y200 in cash will be permitted to each adult, and the balance will have to be taken by either a letter of credit or draft.

Sir Victor Sassoon explained the action of the Japanese Government, according to the *North-China Daily News*, as intended for absorbing all the superfluous Yen outside the country without having it going back there to increase the currency. He commented on the fact that exchange speculation was rife with the difference in value of the Yen in Shanghai and the Yen in Japan. The new law would exclude any possibility of speculation, both directly and indirectly, in the country.

The money to be spent in Japan, he continued, would be taken in the form of a draft or a letter of credit in Japan. Therefore the Yen remained frozen in the banks and would prevent expansion of the currency in Japan.



The Ministry of Finance of the Chungking Government announced a prohibition against the importation of a lengthy list of luxuries. Closely following the announcement, the Ministry promulgated new regulations governing the application for foreign exchange by importers.

These regulations will not, and cannot, be enforced in areas under Japanese occupation, such as Shanghai.

Considerable consignments of goods newly banned were already aboard ships and would be unloaded in the Philippines instead of being returned to their points of origin, Manila businessmen believed, and feared that the dumping in the Islands of American, British and German goods, originally intended for delivery to China, would result.



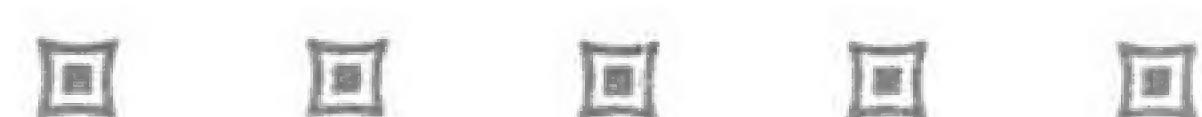
Only *de facto* recognition of the City Government of Shanghai and the Reformed Government of Nanking is expected of the Shanghai Municipal Council by the Japanese authorities, stated Vice-Admiral Naokuni Nomura, Naval Attaché, at the Japanese press conference held on the anniversary of the outbreak of the Lukouchiao Incident.

Vice-Admiral Nomura explained that the essence of the matter was that the Japanese authorities were seeking the co-operation of the Council in the same manner as it was offered to the previous regime in the outside areas. He admitted that perhaps the Settlement authorities had not the legal right to recognize the present City Government, but pointed out that the Council had to realize that the City Government was the only administration in the outside areas at present and that *de facto* recognition should therefore be granted.

The question of the transfer of the Chinese Courts in the foreign areas to the City Government was also discussed. It may be recalled Mr. Fu Siao-en, Mayor of Greater Shanghai, demanded in May the transfer of these Courts and land files.

The Admiral contended that as the Courts were organs of the Chungking Government and acted on its orders, while dealing with cases in which Japanese nationals or interests were involved, the Japanese force in occupation could hardly tolerate such a state of affairs.

To a correspondent who stated that as long as the Chungking Government was the only one that had been actually recognized by any Power, the judiciary rights should belong to that Government, the Admiral replied that the Japanese authorities could not agree to that argument, as in the whole territory under Japanese occupation the Shanghai Courts alone were controlled by Chungking.



The urging of a boycott of Japanese goods and the denunciation of the Japanese invasion of China were the outstanding features of a resolution passed by the Congress for Democracy and Collective Security which held its national convention at the Manila Opera House on the night of July 4, according to United Press.

The Congress cabled a greeting to Generalissimo Chiang Kai-shek and informed him of its plans. The group also sent

cables to President Roosevelt and Lord Cecil, chairman of the International Peace Campaign.

The Congress in the cable dispatched to Generalissimo Chiang said:

"By unanimous acclamation the Congress for Democracy and Collective Security send you warmest greetings and support of the Chinese People in their united front against Japanese Fascist aggression not only by financial help but also by a boycott of Japanese goods."

In the cable sent to President Roosevelt, the Congress declared:

"The Filipino Congress for Democracy and Collective Security acknowledges your leadership of progressive American Democracy for collective security and urges the boycott and prohibition of sending munitions to aggressors."

The Congress cabled to Lord Cecil:

"The Filipino Congress for Democracy and Collective Security condemns aggression throughout the world."

A resolution to boycott Japanese goods and advocating collective security for all Democracies was passed by the Congress.

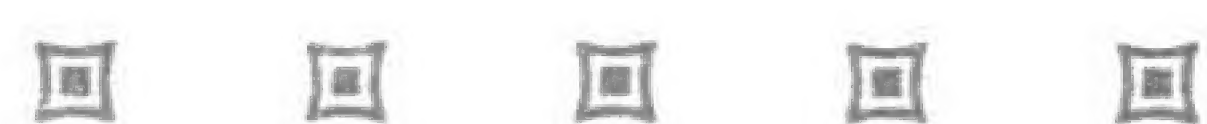
The meeting was carried out as planned despite police warning that the Congress must strictly adhere to the provision of the Mayor's permit. These specified that the meeting could be held only if no attacks against individuals or nations were made.

Mayor Juan Posadas of Manila referred police reports of the meeting to the city Fiscals' (prosecuting attorney) office with copies of the resolutions adopted by the Congress.

The Municipal Fiscals will study the case to determine whether the Congress leaders can be prosecuted for violation of the terms of the Mayor's permit to hold the meeting. They will also determine whether President Quezon's February 3, 1938, proclamation of Philippine neutrality in the Sino-Japanese conflict has been violated.

Police further declared they found several anti-Japanese posters on the walls of the opera house that night. One warned against Senor Benigno Ramos, Sakdal leader who faces a possible two-year jail sentence for alleged inciting to sedition, as a paid agent of Japanese militarists.

Meanwhile, Mr. Jitaro Kihara, acting Japanese Consul-General at Manila, denounced the anti-Japanese boycott resolution. He characterized the resolution as "very harmful to existing friendly relations between the Philippines and Japan," and added, "The resolution is entirely against the neutrality policy proclaimed by the President of the Philippines. I do not understand how some Filipinos can defy their Government."



The Japanese blockade of Foochow and Wenchow means another serious blow to Hongkong trade, according to the United Press.

Hongkong's trade with Foochow last year totalled £70,030, compared with £17,310 in 1936. Of this amount Hongkong dispatched goods to the value of £7,014, the Philippine Islands £5,018, the United States £6,240 and Great Britain £7,620.

The biggest loser, however, would be the Netherlands East Indies which exported goods to the value of £27,050.

Hongkong practically monopolized Wenchow's export trade last year, this Colony receiving £514,348 of the total exports of £520,825 of Wenchow. The only other serious purchaser of Wenchow products was Great Britain which took £3,430 worth.

It is interesting to note that Wenchow's exports rose from £11,245 in 1936 to £520,825 last year.

While Wenchow's trade—both imports and exports—boomed remarkably as a result of the war, Foochow remained at the same level. Of the Fukien capital's exports of £444,483, Hongkong also took the major portion, the total exports to this Colony being £402,480. Britain took £24,820 worth and France £5,590.

Imports to Foochow last year totalled £240,232, the Netherlands East Indies sending the bulk—£41,570—of this total. Hongkong exported £22,900, Great Britain £34,108 and Germany £31,704.

The loss of trade with Hongkong, after both Wenchow and Foochow were captured, are estimated at approximately £1,000,000.



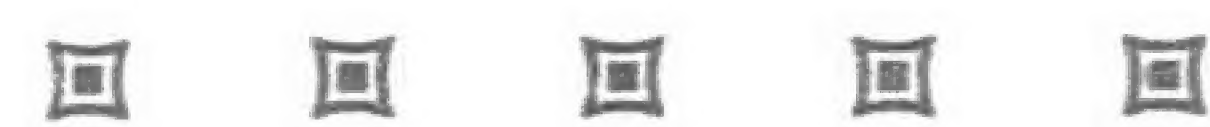
As a result of the recent conference in Singapore between the Commanders-in-chief of the Far Eastern fleets of Great Britain and France, Admiral Sir Percy Noble and Admiral Jean Decoux,

the British and French naval authorities are said to have reached the conclusion that a war with Japan must be avoided at all costs, "since it would compel the two nations to give up totally their interests in the Far East," according to a special Japanese report to the *Japan Times* from Paris.

"On the strength of reliable information in Paris," the message says, "the naval authorities of the two countries, foreseeing difficulty in maintaining Hongkong in case of war against Japan, are said to have agreed to use Singapore as a joint base of operations."

The message alleges that the British Admiralty unsuccessfully tried to persuade the United States Government to participate in the Singapore Conference.

As a result, it adds, "the two European countries were compelled to discuss joint operations against Japan between themselves."



"I am going to retire to my study, to sit and think, and I would that the leaders of this mad world would do likewise. In this lies our only hope to check this inhuman, hysterical rush of the nations towards catastrophe."

Spoken with emotion and with pathos in his voice, these were the last official words of Mr. Yosuke Matsuoka, given in an interview to the *Manchuria Daily News*, as the great Japanese, retiring head of the South Manchuria Railway, prepared to leave Dairen after laying down the mantle of office he has borne with such energy and ability during four strenuous years of unprecedented expansion.

"I am sad in facing the prospect of retirement, sad not through weariness of effort, but through weariness of the weight of a problem that is too big for me, too big for all of us, and yet very close to us all."

"The world is plunging headlong towards catastrophe. I wish that men might sit and think, and that sanity may rise to the surface of these troubled waters. Otherwise I foresee inevitably a greater tragedy than the last Great War."

"I am sorely vexed at the prospect, and I would that I could do something to make men think, and check this insanity while there yet is time. It is too much for me. I must retire to my study, and rest and meditate."

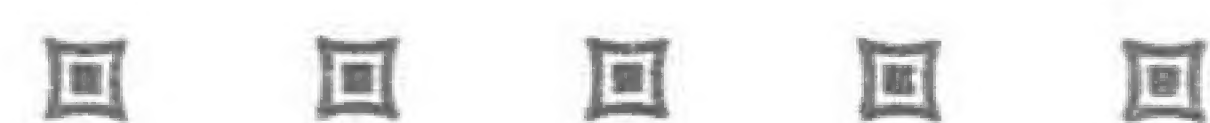
"I am particularly grieved that my old friend Franklin Roosevelt, who as President of the United States is the one man who can preserve the delicate and tottering balance of peace and sanity, is allowing himself to be swept into the maelstrom of strife. I sometimes feel the urge to jump into a plane and go to him, and plead with him to save the world from this awful disaster. He is the one man who can do it."

"His Neutrality Pact is in effect a virtual commitment of the United States, a virtual declaration of potential war. I cannot understand this madness among men. The prospect appals me."

"Alongside the European situation, and behind it the universal madness, instability and hatred, our Far Eastern problem pales into insignificance. It is a whirlpool into which even the pillars of peace and common sense, like Mr. Roosevelt, are being helplessly sucked."

These tragic words, pregnant with truth and feeling, were spoken by a great man, a sad man, sad on the evening of his triumph. One of the ablest of Japan's statesmen and students of foreign and domestic affairs, Mr. Matsuoka is retiring to Tokyo after three years and seven months outstanding service as president of the South Manchuria Railway.

"I am going to Tokyo to be with my family, to be alone in my study, with my books and my thoughts, to rest and meditate until my tired brain, troubled with all this madness, clears. After that, I do not know. I may remain in permanent retirement. I may give my humble services to the cause of Japan and humanity if I feel I can do so with any prospect of accomplishment."



The small fleet of destroyers, submarines and minelayers which sailed from the Soviet Black Sea base more than a month ago to strengthen the Far Eastern Red Navy, has arrived safely at Vladivostok, according to a dispatch to the *Nichi Nichi* from its ace European correspondent, Mr. Katsuji Fuse, in Kaunas, Lithuania.

The number of units in the squadron is not definitely known, according to Mr. Fuse, since it is understood that they were assigned to different positions in the Far East. It is believed, however,

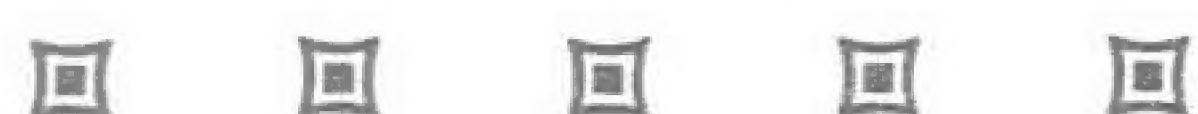
that there are at least a half-dozen vessels in the flotilla that arrived at Vladivostok.

The fact that the warships have arrived at their destination has been revealed by the publication of a congratulatory message sent by Navy Commissar Kuznetsov to the commander of the Soviet Pacific Squadron.

The units sent to re-inforce the Vladivostok base were ordered detached from the Black Sea squadron after the latter had steamed into the Mediterranean at the time of Italy's annexation of Albania.

They were sighted from time to time last month after cruising through the Suez Canal and the Red Sea. As the negotiations in London for the tripartite anti-aggression agreement among France, Britain and the Soviet Union progressed, the warships and their officers were greeted cordially by French and British naval authorities all along the way.

They were the first Soviet naval vessels ever to visit Great Britain's Far Eastern base at Singapore.



With the main purpose of promoting closer economic and financial relations between Great Britain and China, a new agency was created in London in June entitled "The Chinese Government Trading Commission," with offices at Gracechurch Street.

Several well-known Chinese and Britons are connected with the concern, including Mr. Quo Tai-chi, the Chinese Ambassador, who is chairman; Mr. D. G. M. Bernard, Director of the Bank of England and other British firms, who is vice-chairman; Mr. Arthur Guinness; Dr. C. C. Wang, Director of the Chinese Government Purchasing Commission; Mr. T. Y. Lee, co-manager of the Bank of China; and Dr. P. W. Kuo, representing the Chinese Minister of Finance, who will be Director of the Commission.

Interviewed by Reuter, Dr. Kuo said the Commission's object was to promote commercial and economic relations between China and Great Britain, arrange the sale of Chinese produce in Britain and elsewhere, and advise upon orders for British machinery and other goods required by China.

The Commission, he added, would act as a sort of clearing house for Chinese purchases in Britain.

"We are hopeful," Dr. Kuo declared, "that it will prove a very valuable instrument. China more and more requires British co-operation in her work of reconstruction."



The proposal to build three battleships for the Netherlands East Indies will involve increasing the size of the dockyard at the naval base at Sourabaya, Java, about 700 miles from Britain's £20,000,000 Singapore base, sufficiently to accommodate capital ships, Reuter reported from Sourabaya on June 4.

With the opening of the Singapore Naval Base dockyard last year and the proposal to build a large dock at Sydney, this means that two non-totalitarian nations will have three docks capable of taking capital ships—all within a stretch of 5,000 miles along the western Pacific.

The amount to be set apart for the Netherlands East Indies battleship program will be 300,000,000 guilders, for which a Bill will shortly be presented to the Netherlands.

Of that amount, 75,000,000 guilders will be for necessary extensions to the naval base at Sourabaya.

The proposal to build battleships came as unexpected news in the Netherlands East Indies itself, where, however, the newspapers have for some time been urging the necessity for them.

From a reliable source in Holland, the Batavia newspaper, *Java Bode*, understands that the new warships will be of "small" battleship type, of 25,000 tons and capable of a speed of 32 knots. Although not as strong as full-sized battleships, this type will be faster.

These warships, it is claimed, will in armament and speed surpass the ships of similar size in any navy of the world.

This type is regarded as ideal for the defence of the Netherlands Indies, as it is not expected that any country would pit its whole fleet against the Netherlands East Indies.

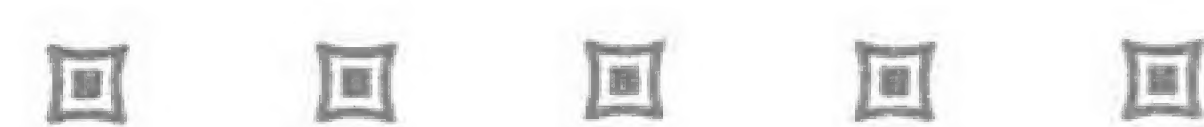
Java newspapers regard this naval expansion policy of clear proof that Holland does not consider the Indies should provide all the defence necessary to retain the Colony for the homeland.

It has already been decided to increase the naval strength of the Indies by six 8,000-ton cruisers during the next three years.

At present there are only two cruisers based on Sourabaya, the *Java* and the *de Ruyter*. One new one is under construction and another is to be started next year.

There are also the 3,450-ton flotilla leader *Tromp*, eight destroyers and 12 large submarines.

Last year there were one flotilla leader and four destroyers being built and there were proposals for the increase of the submarine fleet to 18.



"Critics of the Government's decision not to evacuate civilians from Singapore's congested areas in the event of an emergency have overlooked the very material fact that the anti-aircraft defences of Singapore are already good and are rapidly becoming very good," declared Sir Shenton Thomas, Governor of the Straits Settlements and High Commissioner of the Malay States, speaking at a meeting of the Federal Council at Kuala Lumpur, capital of the Federated Malay States.

"Our plans for A.R.P. in Singapore, and indeed Malaya, are based on the best possible technical advice and have received the approval of the General Officer Commanding, Major-General W. G. S. Dobbie.

"It is obvious that there is much less inducement to an enemy to attack the centers of population in the F.M.S. than in some other parts of Malaya.

"For this reason the G.O.C. considers, and I agree with him, that it is not necessary in the present circumstances to do more in the F.M.S. than to impress on people the elementary principle of self-protection in an air attack, which is to get indoors and stay indoors.

"A list of vulnerable points, essential for the purposes of defence, has been drawn up by the G.O.C. and arrangements for safeguarding them have been made.

"The fact that they are still incomplete is due to the many revisions that have been necessary in the list, which, however, is now final."

Sir Shenton Thomas referred to the safeguarding of women and children by evacuation or other means.

It was clearly impossible to arrange for any person to be moved for safety's sake from any one area to another, so long as the area to be attacked was unknown. Premature evacuation might result in persons being moved from an area which was not attacked to an area which was.

"The enemy's intentions must be known before people can be removed from the threat of his activities," Sir Shenton added.

"In the meantime, Major-General Dobbie does not consider that any scheme for evacuating any part of the population of Malaya from one area to another is justified.

"The safeguarding of women and children whose menfolk have been called up for defence is a different matter and has been fully examined by the State Defence Committees.

"State concentration schemes have been worked out and are ready to be put into operation. We propose also to take legal powers to arrange for billeting if necessary."

Regarding air raid precautions, Sir Shenton Thomas said:

"The first thing is to get a few facts firmly fixed in our minds.

"Malaya is very fortunately situated geographically, surrounded as she is by countries with which the relations of Great Britain are cordial.

"An air attack can therefore, as things are to-day, only be launched from the sea, from aircraft-carriers, by machines neither very numerous nor very capacious nor of very long range.

"In planning an attack an enemy must therefore take into account not merely the possible loss of some of his aircraft, but also the possible loss of his aircraft-carriers or such damage to them as will make it impossible for machines to land on them or to be released from them.

"The Royal Air Force in Malaya has already a number of machines far exceeding in speed and range any that can be launched from an aircraft-carrier, and this number is being steadily increased (Malaya has four R.A.F. squadrons, all based on Singapore).

"It is reasonable to hope, therefore, that an enemy aircraft-carrier would be attacked before she could approach sufficiently close to the coasts of Malaya to enable her to release her machines; or that if she succeeded in this approach, she could and would be found and attacked before her machines returned and she could get away.

"Speaking in terms of naval vessels, an aircraft-carrier is vulnerable.

"As things are to-day, therefore, it is impossible to conceive air attacks on Malaya with the frequency or on the scale that has been experienced in China or Spain or that might be experienced in England.

"Their frequency depends entirely on the ability of the carriers to get and keep within range: their scale must be restricted by the limited weight-carrying capacity and number of the machines that a carrier can accommodate.

"It must be supposed therefore that if by chance an enemy found himself able to make an attack by air, he would concentrate on inflicting the greatest possible military damage and would not waste precious metal in bombing civilian towns which experience everywhere has shown to be fruitless.

"It may be said that an enemy will first establish a nearby base, on land. He would certainly be opposed in any such attempt, and he might succeed or he might not. I can only say that no such base exists to-day."



In expressing regret to officials of the American Embassy over damage done to American property by aerial bombing Mr. Morito Morishima, Counsellor of the Japanese Embassy, voiced the charge that it was the common practice of the Chinese to erect defensive positions close to American properties. He added.

"The Chinese forces, have constantly resorted to the practice of attacking from behind the cover of Third Power property and of misusing and in other ways taking advantage of Third Power colors, thereby causing no little difficulties for the Japanese forces.

"On May 1, 1939, a Japanese army sentry was fired upon and wounded near the Lingnan College, an American property, located to the south-east of Canton. And on the day following, a gun-

launch of the Japanese Navy was hit by a shot fired from within the compound of the same college.

"In connection with the incident, both the American Consul-General and the President of the College admitted that they had occurred through the illegal use of college property by unruly Chinese elements, and expressed their regrets.

"Following the capture of Nanchang, wire-entanglements were found erected along the riverbank in front of the Standard Vacuum Company's installation located near the northern edge of the city. And inside the compound of this company, near the front entrance, was found a large pile of posts identical with those used in the wire entanglements above mentioned.

"Above the building of the said company was hoisted an American flag.

"Also at Nanchang, defence positions had been constructed within the compound of the building immediately adjoining the American Methodist Episcopal Church, with numerous loopholes in the brick wall surrounding it.

"This wall was a continuation of the brick wall surrounding the American church; and on the face of the wall in front of the church, at the very point where the two walls were joined, was painted an American flag. When observed from the outside, the Chinese building in question appeared as though it were a part of the church.

"In front of the American Methodist Episcopal Church, facing the Kan River, a pill-box had been constructed.

"Adjoining the American Church on the south side is the Nanchang Hospital.

Near Tunghu, in the central part of Nanchang, was an American residence; and on the face of the wall surrounding it was painted in large letters "Down with Japanese Imperialism." Since the occupation of the city by Japanese forces, this inscription was covered over with ink."

THINGS TO WORRY ABOUT

Uncle Sam Slips Again

New York, July 5.—Responsible opinion in London currently holds that if the United States Congress deliberately tried to sabotage the peace front England and France are trying to build up in Europe, it couldn't have done a better job than it's doing now, according to a London report in the *World-Telegram*.

The same analogy is leveled simultaneously with regard to Great Britain's feeble efforts to defend its interests in the Far East. The policy at Washington is considered tantamount to hamstringing British diplomacy in East Asia.—*I.N.S.*

* * *

The Dirty Dog!

Wellesley, Massachusetts, May 1.—For the first time in its 44 years' history, Wellesley College's annual senior-class hoop race was won by Harvard.

Setting what must have been an all-time record for the 1,300-foot downhill course, a honey-haired competitor startled the spectators by finishing ahead of the field of 400 girls "She" turned out to be a male Harvard student.—*United Press*.

* * *

No Place for Patriots

New York, July 9.—Sixteen Chinese students who were picketing the Japanese Pavilion at the World's Fair were evicted from the grounds of the exposition, the Fair police announced to-day.

The youths carried banners bearing such slogans as "Boycott Japan. Your dollar bills become bombs."—*United Press*.

* * *

Another Crisis in Tokyo

The *Japan Advertiser* reports that Economic officers of the Tokyo Metropolitan Police Board have warned representatives of the Tokyo Jam Preservers' Association that jam, jelly and marmalade prices are creeping up too much and advised them to get them in hand.

The reason for the price rise, according to the *Kokumin*, is that Shizuoka and Hyogo strawberries, Aomori apples and Nagano apricots all have gone up in price recently.

Why—?

London, June 21.—The Government decided to-day to approach the United States Government on the problem of England's war debt to America, with a view toward seeking a settlement whereby payments might be resumed in December.

The British Ambassador is expected to point out that, while the debt can't be met in full, the best solution may be for repayment of either the principle or the interest on the debt. England would prefer payments on the principle, it is said.

Sir John Simon, Chancellor of the Exchequer, has been discussing possible methods of resumption of war debt payments with Government experts and the Cabinet is said to have agreed that it might be necessary, during the current period of heavy rearmament, to raise the money to resume service on the war debt through a Government-guaranteed loan. The loan would be floated on the British market, but would also be available simultaneously for subscription in the United States.—*I.N.S.*

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Note for Travellers

The cost of travelling in Japan has risen slightly according to the *Kukumin*, when railway dining car operators boosted the price of beer, sake and soft drinks by one sen a pint. Large bottles of beer have gone up two sen and timetables, which heretofore have brought 25 sen, are up five sen. Meanwhile, station restaurant managers and platform peddlers are seeking authority from the Railway Ministry to effect similar upward revisions in their wares, the newspaper says.

* * *

More Chungking Mandates

Mrs. Wang Ching-wei, nee Miss Chen Pih-chung, wife of the deposed deputy chief of the Kuomintang, was permanently expelled from the membership of the party by the Standing Committee of the Central Executive Committee in a meeting at Chungking yesterday.

Mr. Chow Fu-hai, deposed acting director of the Central Publicity Council and one of the close aides of Wang Ching-wei was also expelled from the party.

Chinese Currency

ON June 7, it became known in Shanghai suddenly that the Directors of the Anglo-Chinese Stabilization Fund had abandoned control of the Chinese currency. Exchange rates recorded a sharp decline, as much as 20 per cent. Most observers attributed the action of the Directors to recent developments in Shanghai, that is, to an overwhelming demand for foreign currencies resulting from an adverse trade balance and anxiety for the future of the Chinese dollar. It was reported that Shanghai drained in April and May alone over £4,000,000 out of the Stabilization Fund of £10,000,000.

The adverse balance of trade for the first four months of the present year amounted to \$134,467,521. Imports during the month of May were more than double the value of exports. The Stabilization Committee, which had been striving to maintain the value of the Chinese dollar, decided to take steps to reduce the drain, and the easiest possible course was chosen. Among two or three alternatives, the lowering of the exchange rates would hurt less than other steps all interests concerned and encourage export activities.

It is true that the Japanese, especially the cotton spinning industrialists, managed to take advantage of the Fund's exchange allotment to Shanghai. Many important transactions financed out of the Fund were allegedly done on behalf of the Japanese. Naturally the Chungking Government did not like this. However, it is widely beside the mark to assert that the action of the Committee was solely motivated by a desire to prevent the Japanese from making use of the Fund in Shanghai to acquire foreign exchange from Chinese reserves, because the decline of the value of the Chinese dollar would simultaneously hit western business interests as well.

It has been the policy of Great Britain to maintain the value of China's currency, and it was for this purpose that the Stabilization Loan of £10,000,000 was created in March this year. Against the allegation that it was another move unfriendly to Japan, British circles contended that it was primarily intended for the protection of the British interests, and not for assistance to the Chungking Government. As lately as on July 5, Sir John Simon, Chancellor of the Exchequer, stated in the House of Commons: "I see no reason to depart from the view that the stability of the Chinese currency is of importance to the Government from the viewpoint of British interests and the interests of other countries which enjoy economic and financial relations with China." When Mr. F. J. Bellenger asked: "Is the British Government still going to support the exchange value of the Chinese dollar? And has the Chancellor sufficient resources available for that purpose?" Sir John replied: "Action of that sort was taken. But it was taken by legislation and I cannot at present announce any further action." Why then did the Stabilization Committee suspend control of the Chinese dollar and seek a stabilization anew somewhere around 6½d.?

Until the recent decision the Committee formerly maintained the Chinese dollar around 8d., which was, however, regarded in some circles as too high for the financial situation in China. China managed admirably to pay for munitions imports, military expenses and other commitments, and meet the obligations arising from external and internal loans, although she had lost the bulk of the sources which furnished her national revenue. The severest blow was dealt to her revenues from taxation, more than 90 per cent of which came from Customs and salt revenues and Consolidated Taxes (on tobacco, cotton, yarn, flour, matches, cement, etc.). Now, most of the Customs are under Japanese control and the revenue from such Customs amounted in 1936 to 87.4 per cent of the total Customs revenue. As regards the Salt Gabelle, most of the salt producing sea coasts are also in Japanese hands, and the loss to the Chungking Government is estimated at more than 60 per cent. A sharp decrease in the Consolidated Tax revenue is naturally inevitable, as the modern industrial districts are situated in areas under Japanese control. The revenue from income tax showed a decrease of 20 per cent. Moreover, China's trade balance recorded an astounding excess of imports over exports as mentioned before. With the sharply declined income, the Chungking Government had to meet greatly increased war expenses. It is remarkable

indeed that China could carry on war for 20 months with all these difficulties.

The first major crack in the financial structure of China appeared on January 15 this year. It was announced that the Chungking Government was temporarily deferring principal and interests payments on loans secured on the Customs surplus (It may be recalled that had the Chungking Government recognized the Anglo-Japanese Customs Agreement, this could have been avoided, or rather, would have deprived the Chungking Government of any excuse). On June 19 Reuter reported from Chungking that the payments on the internal loans secured on the Customs revenue would be discontinued. On June 21 there was imposed a further limitation on the withdrawal of bank deposits. During the last part of June, announcements were made in rapid succession of a strict trade control and the suspension of payments on the International Reorganization Gold Loan of 1913.

It is a matter of especial significance that the payments on internal loans secured on the Customs revenue were discontinued. The Chungking Government ought to have continued payments on internal loans, most of which are secured on the Customs revenue. It is because the Chinese financiers who are supporting the Chungking Government own a large amount of such loans and sustain heavy losses when such payments are stopped (At the end of 1936, the Government banks owned C.\$163,880,000 worth of securities, while private banks owned C.\$142,644,000 worth).

The fact that the Chungking Government had to adopt the step that should be avoided as far as possible betrays the financial weakness of China, and this is the principal factor that caused the Stabilization Committee to abandon the former level of the value of the Chinese dollar and seek a stabilization at a far lower rate, which was about 6½d.

What is most needed of a nation's currency is stability. Uncertainty is worse than a low exchange value. Business interests in China would be happy if they could obtain from the British Government, or someone else, the assurances that the Chinese dollar would be maintained at or around the present rate. However, there must be a strict limit to the amount of responsibility which the British or any other country's taxpayers can assume with regard to stabilizing the currency of a foreign country.

* * *

After the above article was written, the Chinese dollar showed a further decline, consequent upon the withdrawal of support by the Stabilization Committee.

It transpired in Shanghai on July 18 that there was no official support, and the rate of 6½d. rapidly dropped to a new low of 5d. On the following day, the rate in the open market slipped down to 4¾d. As on the previous occasion there were speculations once again as to the strength of the Stabilization Fund and whether Great Britain would continue supporting it.

The *Financial News* of London said in a leader on July 19:

"The stability of the Chinese dollar is undoubtedly of interest to British trade and Sir John Simon, Chancellor of the Exchequer, confirmed only a few days ago that it was still the object of British policy.

"On the other hand, there could be no point in subscribing additional resources if to do so were to throw them into a bottomless pit."

"The rapidity with which the original £10,000,000 were swallowed up suggests that this might prove to be the case under present conditions.

"As the exchange proceeds from exports are falling into the hands of Japan, a large part of the original fund, in effect, has been handed over to Japan, while another large portion has been handed over to facilitate exchange speculation and capital export.

"Although the latter loop-holes are now closed, it will still be necessary to institute still more rigid control of imports to ensure that they are not paid for simply with Japanese currency.

"Provided that is done, further assistance might possibly achieve its end, for currency conditions in China are still by no means chaotic.

"It is sincerely hoped," the *Financial News* concluded, "that a way will be found round the difficulty, for the tone of Japanese comments leaves little doubt that any withdrawal of British support at the very moment of the Tokyo negotiations would be interpreted as a sign of British weakness."

Observers in Tokyo attributed the fall to the following causes:

- (1) Suspension of remittances from overseas Chinese owing to the instability of the Chinese dollar;
- (2) Stoppage of outgoing trade under the jurisdiction of the Chungking Government owing to the occupation or blockade of all important seaports by Japanese forces;
- (3) Exhaustion of the Stabilization Fund which is now depleted to only £1,000,000.

They said that contributions from overseas Chinese, increase in trade and financial assistance from Great Britain were necessary to stabilize the Chinese dollar, total circulation of which is estimated at \$2,000,000,000.

In Chungking the fall was attributed to rumors, which were declared to be groundless in official circles, that Dr. H. H. Kung was going to resign and that Dr. T. V. Soong would proceed to London shortly. Speculation regarding the outcome of the Anglo-Japanese negotiations in Tokyo also contributed to the decline, it was believed, since Chungking circles assumed that Great Britain would adopt a conciliatory attitude and that a compromise with Japan would have an unfavorable influence on Chinese currency.

The Hua Hsing Commercial Bank decided to divorce its notes from the national currency on July 20 and peg them at an exchange value of 6d. against the pound sterling, and issued a statement which read:

"In issuing its notes, this Bank, as was stated by the Reformed Government and the Japanese authorities at the time of its establishment, sought to make up a shortage of currency, pave the way for smooth circulation and to protect the property of the populace by providing notes to take the place of the unstabilized Chinese national dollar.

"The collapse of the Chinese national currency has come much earlier than we expected. It has declined twice in the short period of two months. Those people in possession of it have suffered losses as their purchasing power shrank.

"We sympathize with the people who are suffering hardships because of the constant fluctuation of Chinese currency. We regret that currency has not been stabilized and that it faces the prospect of still greater fluctuation in the future.

"This Bank has heretofore maintained the value of its notes on a par with that of Chinese national currency because it took into consideration the possible inconvenience which might be suffered by the populace, not yet accustomed to the new currency.

"The Reformed Government and this Bank announced that the new notes ought not to be linked indefinitely with Chinese national currency, the deterioration of which seems without end, and thus cause losses to the populace.

"Now that the Chinese national currency has declined a second time, this Bank, fulfilling its pledge, has decided to place its notes on an exchange value basis of 6d. against the pound sterling, and thus divorce them from Chinese national currency.

"Therefore, this Bank is prepared at any time to sell at this rate foreign currency to holders of its notes. It will also exchange them for Chinese national currency at the rate which may be fixed in accordance with the market price. The Bank is prepared to meet a demand for exchanging national currency for notes of the Bank.

"It is hoped that everyone will understand that the first consideration of this Bank is the welfare of the people, and will stop using Chinese national currency, instead carrying on all transactions with the notes of this bank and thus be prepared for a possible disastrous decline of Chinese national currency."

The Reformed Government also issued a statement as follows:

"The Reformed Government has given permission to the Hua Hsing Commercial Bank to henceforth divorce its notes from the Chinese national currency and to operate on an independent basis of exchange value of its notes.

"Last May this Government established the Hua Hsing Commercial Bank and had notes issued for the purpose of preventing losses to the people from possible declines of national currency. And its anticipations in this direction now have proved correct.

"The National currency stabilization committee of the Chungking Government, supported by Britain, on June 7 stopped selling at 8.25d. and again yesterday, July 18, stopped even the control selling at 6d. Thus Chinese national currency has plunged to the level of 5d. There is no prospect that the decline will stop, and it may collapse to even 1d.

"This Government ardently hopes that those who wish to safeguard their property will use Hua Hsing Commercial Bank notes, because the Bank's first consideration is to protect the interests of the people."

American and Japanese Relationships

IN 1853 the United States was an unbidden and unwelcome guest to Japan; the Americans, in fact, thrust their way into the country at the point of a gun. In doing this the Americans were acting solely in their own interests, seeking commercial advantages, although it became apparent that benefits for both nations were expected to result. The example set by the United States was followed quickly by other Western countries. The Nipponese realized promptly that this was sheer intimidation, but they had the wit to put a proper valuation upon the situation and the realization was born quickly that Japan would have to emerge from her centuries-long slumber.

Japan realized that the American action in forcing a way into the country was motivated by the American national interest, but as time passed, in making comparisons with other invaders from the Occident, Japan became aware of a national characteristic peculiar to the Americans. The Nipponese discovered that American diplomacy and national interest always is intermingled with an international morality. The Japanese saw that evangelical works of the Christian church and various philanthropic enterprises were an important element of the American policy. The circumstance that the Japanese nation became deeply grateful to the United States for the immense change that had been thrust upon her, although this had been enforced, may be attributed to this moral factor in American international activity. When the Americans exerted every effort to throw open the way to knowledge

of Occidental methods, arts and science to the Japanese, suddenly avid for learning, this feeling of gratitude deepened.

Since that time American beliefs and manners have entered deeply the daily life of Japanese masses, and in this connection it should be remembered that Japanese are the most literate people on the face of the earth, with the possible single exception of the Dutch in the Netherlands. In the respect of literacy the people of Japan are some distance ahead of the American nation. Another factor that fostered the growing affection and admiration in Japan for Americans was supplied by Japanese emigrants to the United States who brought back with them typical American customs and manners on their return home, and graduates from American colleges who brought back ideas of American culture. Owing to these things the spiritual ties of Japan with America became stronger than those that Japan has with any other nation. It became apparent that typical American deportment and customs had found favor in the eyes of Japanese in general. Straight forwardness, at times coarse, but usually kind demeanor, gallant behavior towards the gentler sex—all these American qualities won the hearts of modern boys and girls of the island empire.

Jim Gannon Strikes Them Out

Baseball, a direct American importation, has almost overshadowed the Japanese national wrestling sport of Sumo, although

something like a revival of this now is being witnessed. The spirit of Americanism, reflected from the baseball diamond, has deeply appealed to the Japanese nation.

Jim Gannon, who is a husky descendant of Erin, and who as these lines are written, is lost somewhere in the wilds of Southern California, about twenty-five years ago was one of the foremost pitchers in the American Asiatic Fleet. He was on the mound in a game against a Japanese team in Kobe one day and fancied that he was doing pretty well. What he regarded as an oriental form of razzing from the crowded bleachers began to get Gannon irritated.

"Wonder if those babies think they can get my goat with all their banzaing?" Gannon remarked to a teammate between innings. The other player grinned at him amiably.

"Why, you dumb gob," he said. They aren't razzing you. They're yelling 'Banzai.' They're cheering you!"

A hook, now forgotten, was another factor in building up the Japanese viewpoint with regard to the United States. This was Marden's "Pushing to the Front." It was widely read in the latter part of the Meiji era by Japanese students of the English language, and all Japanese were studying English then. Pushing to the Front served as an incantation for the newly emerging nation towards the end of the preceding century.

The Americans proved to be good teachers and certainly the Japanese have been apt and faithful pupils. Japanese leaders of the present day assert that the higher motives of their country's policy in China are an imitation of the American policy that was followed in opening Japan eighty years ago. And the spirit which guides present day Japanese enterprise on the Asiatic Continent is the same spirit that Marden so forcibly described in his famous book. In bringing their country to its present eminence as a world power the Japanese first learned, then adopted American methods, and it is their own belief at any rate that they are following the same methods in their policy towards China. In other words, the status of China with regard to Japan to-day approximates what the status of Japan was to the United States in the middle of the preceding century.

It seems to have escaped the notice of publicists and those concerned with the writing of the Lytton Report on the Manchurian Incident that in creating the new State of Manchoukuo, as an outgrowth of the Manchurian incident, the Japanese patterned their action nicely after the manner in which the United States created the Republic of Panama.

The Rift in Relations

Japan has not yet discovered any major cause to antagonize the United States. The Japanese gratitude and affection for Americans continues to survive all rebuffs. The amity between the two nations was unimpaired until the Manchurian Incident took place in 1931. The rift in relations that developed then has been widened by the developments of the past two years in China. External factors have been injected into this relationship between Dai Nippon and the United States. Moscow and its effective world-wide propaganda machine has been thrown into gear and put into full speed to damage Japan. Great Britain, professing to see dangers to her immense holdings in the Far East in any form of Japanese domination in East Asia, regards all Japanese activities coldly and with suspicion and for the same reason the French Government has become uneasy and critical of the Japanese. The elaborate facade that these Powers have erected to conceal their actual concern over what Japan is doing in Asia is built upon the dire plight of an oppressed invaded China. The Americans are altruistic; they see only the facade and few if any of them have any recollection of the decade in the twenties through which the Tokyo Government employed every possible effort to conciliate and make friends with China, striving in this way to safeguard the immense Japanese stake in China which even at that time rivalled the immensity of the British holdings. China's answers to these advances, it should be remembered, was to employ every possible expedient to destroy the Japanese economic position on the Continent, destruction of which inevitably would have meant destruction of the Japanese Empire. Japan, then as now, faced an outside world of doors closed to her people and even then had begun the erection of tariff walls and imposition of trade quotas against her exports which were her last resource to provide for

a rapidly expanding population that could turn in no direction save toward the Asiatic Continent.

American opposition to the Japanese action on the Asiatic mainland rests upon two contentions. The first, and probably the more important in the American view, since it is a question of morality, is the charge that in doing what she has done Japan has flouted and violated the Nine-Power Treaty. On the face of it, it appears that Japan has done exactly this, but it is only justice to grant to any defendant a hearing.

In extenuation, Japan asserts that she resorted to what she calls "positive action" in China only when every effort to avert such action failed and when she faced extinction as a world power. In short, Japan contends that what she did originally in Manchuria was done in self-defence, and it is a common tenet of International Law that the right of self-defence is inherent in any and all treaties. The lesser reason for American displeasure with what Japan has been doing in Asia rests upon the belief that a mythical "great Chinese market of 400,000,000 customers" will be removed beyond the reach of American commerce and that existing American commercial holdings and American trade in the Far East will be destroyed.

Myths that are Realities in the U.S.A.

The myth that persists of "a great Chinese market" has been exploded so completely and so repeatedly that it will scarcely bear serious study. A nation whose per capita annual expenditure is only about \$10 is in no position to buy goods from Western countries, even if these goods might be laid down in the country without transportation charges. The only manner, in fact, by which China can buy goods from Western lands is to do as she has done hitherto, that is, first to borrow the money to pay for such goods from lenders in Western lands. China's record of repayment of such loans is not impressive as any international banker, in many cases sadly, can testify.

The American commercial stake in Manchuria has never measured into importance and assuredly never has been significant enough to warrant any grave action that might be offensive to Japan, who continues to hold place as the third best customer of the United States. The whole American commercial stake in China does not exceed \$150,000,000 which is in addition to an approximate \$40,000,000 in missionary property. To safeguard this whole stake of less than \$200,000,000 the major portion of American naval programs in recent years have been geared for action in the Pacific at a cost to American taxpayers of billions of dollars.

The American trading record in the Far East discloses that wherever Japan has attained a dominant position, American trade has prospered and increased. This has been true ever since Japan made her first move in the enterprise of colonization back in 1896 when the Island of Formosa was ceded to her by China at the end of the Sino-Japanese war of that year. American trade made immense gains in Korea after Japan annexed that country in 1910 and a new and valuable market for American products suddenly blossomed and flourished where before there had been no trade in the Chinese Province of Shantung through a brief period beginning of 1916 when Japan came into control of that Province, after evicting German interests in the World War. When Japan got out of Shantung, largely due to American prodding, that trade vanished.

At the conclusion of the Russo-Japanese War when Japan came into control in Manchuria beginning of 1906 an American export trade to that country running into hundreds of millions was developed. Although the charges made by Americans that Japan has closed the Open Door in Manchuria sales of American goods to the new State of Manchoukuo have more than quadrupled according to official figures for 1938 over the export totals for the year in which this new State was founded.

The belief that American trade may be extinguished as an outcome of Japanese action in China does not appear to have sound basis. America sells goods to China in the best of years to the value of about \$100,000,000. Not less than half of this consists of tobacco, oil and cotton. This trade is monopolistic in nature and, for the time being at least, cannot involve any question concerning the Open Door principle and cannot be disturbed by any competitor. Approximately another \$25,000,000 of the annual hundred million trade of the United States in China comes from that special market in China that the Japanese themselves have created in building up their immense stake in the country which

now is said to surpass even the huge British holdings. These Japanese investments in China have gone into mills, mines, railways, transportation, and a great variety of industrial establishments many of which are equipped with machinery of American origin.

It is not to be expected that this portion of American trade in China, roughly twenty-five per cent, will be disturbed by any action Japan may take in the Far East. Our whole concern, therefore, about any prospective loss of American trade can be centered only on a matter of some \$25,000,000 annually, which is a very small fractional percentage indeed of the total export trade of United States.

A Different but Logical Possibility

It appears more logical to believe that instead of extinguishing American trade in the Far East, that American trade might be vastly enhanced and increased were Japan to succeed fully in realizing her cherished aim for the establishment of what she calls "a new order in East Asia." It may be noted here merely incidentally that in 1936, which was very far from being a banner year in Far Eastern trade, the United States sold to China goods to the value of \$46,819,000. America's sales to Japan that year totalled \$204,312,000. It is also to be recorded that in that year United States sold more goods to Japan than to China and all the South American countries combined.

It has grown fashionable in high international circles to give Russia a rating as a democracy. One can just as logically regard Russia as a democracy as one might regard China as a republic, or look upon Japan as a totalitarian state. As regards the government of China the beautiful American concept of "a sister republic across the Pacific" is a mirage that never even attained substance in the hearts of the greatest of China's leaders since the overthrow of the Manchus in 1911. A Republic of China, was simply a phrase coined by Sun Yat-sen but even with him it was never more than a hope. All the succeeding Chinese governments that have existed since the end of the monarchy in China have based their power solely upon armed strength, on armies, that were almost continuously waging war against each other until Japanese intervention necessarily forced the warring Chinese factions into a semblance of unity that would instantly evaporate if Japanese pressure were removed.

The Great Masquerade

China has had four or five constitutions, all abortive, documents that scarcely got beyond the stage of being drafted, the nearest approximation of a public assembly representative of the people was a form of parliament brought into being about twenty years ago in Peking which lived but briefly to die of its own internal corruption. An election is a phenomenon known in China only within those narrow limits in which the foreigner rules. A ballot is an instrument utterly beyond the experience or understanding of even enlightened Chinese, such as clerks and tradesmen. Democracy has never taken root in China, although her polished diplomats ever have talked glibly of this form of government. Within the scope of action that is now permitted to him by Moscow since the alliance of the Chinese National Government with the forces of communism, Generalissimo Chiang Kai-shek continues to be what he has been since he came to power, simply a dictator.

The Japanese contend that establishment of a new order in East Asia, which they expect to achieve, cannot mean the negation of the principle of democracy. They assert that the principle of democracy will be employed in the structure of the new order they are striving to bring about and that new relationships of East Asiatic racial groups do not presuppose enforcement of any one nation's will upon the other races. Therefore, the new political formula of the new order will contain the spirit of democracy, but not an antiquated form of formal democracy. By reason of all of this it is the Japanese belief and viewpoint that Japan's action in China basically does not conflict either with material or moral values of the United States.

The Wholly Unique American Position

An important and unique element in the position that the United States occupies to-day in world affairs generally is glossed over or discreetly ignored. It should be apparent that of all nations of the earth the United States alone holds the power to

act as it pleases in any one of several directions that may be deemed to be in the best interests of the Nation. Particularly, all other major powers are so placed that scope of action they may wish to take is sharply limited. In general, they are obliged to follow particular courses in the effort to solve special problems that confront them. It is quite probable that future action United States may take in international affairs may be a determining factor.

It is to be seen, therefore, that American co-operation or favor must be of the very greatest importance, particularly to those powers whose scope of action is limited. Because the United States occupies this unique position in world affairs the Nation is specially exposed to continued concentrated efforts in every guise and form exerted from outside of the country, and designed to influence American public opinion. The greatest propaganda experts in the world have been recruited for this important job, and it is to be recorded also that they have achieved a considerable measure of success. Repeatedly, it is insisted that it is the sacred duty of the American nation to be the Saviour of democratic forms of government on the earth. It is urged that we must without delay go to the rescue of neighbors, in our own interests, as a measure of self-defence against purely imaginary future perils to the Nation.

Communist spokesmen, for example, solemnly reiterate the threat that the Japanese will cross the six thousand miles of the blue Pacific and bomb our western coasts. Many Americans listen unsmilingly to this sort of thing apparently ignorant of the fact that every naval expert in the world knows, and not a few have said, that Japan would have to have a navy of not less than triple the strength of the American Pacific Navy before it even could hope to think of such an adventure. The American people are told by glib foreign spokesmen that the American Government has *guaranteed* to maintain the integrity of China, and continually these same spokesmen harp upon the Open Door. The fact is that the Open Door notes, which never received any form of Congressional sanction, and never attained anything approximating treaty status, do not bind the Washington Government in any way to maintain the territorial integrity of China. Nor does the Nine-Power Treaty, so piously and so frequently invoked, contain any such guarantee. The record discloses that the Open Door has proved to be an extremely costly principle under which for every dollar Americans have taken out of China annually they have sent back eight or ten. Economists in general have testified that the whole Open Door principle is a simple economic illusion.

Still the clamor rises from platform and press in the States. Listen to the cries that are raised, "Japan has established a puppet government," "Japan is the foe of Democracy," "Japan intends to annex China," "American Far Eastern trade is being destroyed."

Extremely faint traces of truth may be found in one or the other of such statements. For the most part, they are just that old-fashioned kind of bolony that the boys have been talking about for years.

Plans for Japan's Automobile Industry

Simultaneous with enforcement of the recent law to stabilize the manufacture of automobiles in Japan, the Ministry for Commerce and Industry, in endeavoring to encourage this growing domestic industry, has appointed a technical committee to formulate a system whereby recognition of merit can be officially given manufacturers of parts and producers of material for automotive vehicles.

In order to bring automobile production capacity more nearly in line with nations leading the field, the Ministry is determined to spur production activity, with 1941 as the final year in which to effect expansion in all phases of the industry. To this end, preparations are being made to organize a research institute, provisionally called the Jidosha Kenkyusho (Automobile Research Institute), for which a tentative plan has been drafted, but not yet made public.

With this plan for the institute as a nucleus, the co-operation of the Cabinet Planning Board and other ministries concerned is being sought. Expenses required to implement the plan will be included in the next fiscal year's budget of the government.

The work of the new institute will parallel that of the Central Aviation Institute of the Communications Ministry and the Machinery Experimental Station about to be opened under the 5-year plan of the Commerce and Industry Ministry.

Side-lights on the Open Door Issue

WHILE the American State Department continues to insist that the Open Door is being slammed shut in Eastern Asia, and has been completely closed in Manchoukuo, the paradoxical situation in which the United States is selling more goods to Manchoukuo than ever before, has arisen through the past two years. Sales of American products to Manchoukuo in 1937 and 1938 reached a new high.

This situation seems to furnish a basis for the repeated Japanese contention that the Open Door principle has not been and is not being violated in East Asia. It is undoubted that the main volume of American goods being sold in the Far East is not only being maintained but appears to be increasing rapidly, and to this extent it would seem that the Open Door is indeed being kept wide open. On the other hand, the contentions of manufacturers' representatives, agents and alien business people on the ground in Asia, also assuredly have sound basis. These elements insist loudly that Japan in closing the Open Door in Asia. For most of these people this is probably only too true. The manner in which events have been unfolding in China indicates that the resident middle-man to a large extent may expect to be eliminated from the scene. If this involves a violation of the Open Door principle, then assuredly the principle is breaking down.

But the Open Door principle is presumed to be concerned only with trade and it is clear that the volume of American trade is on the increase. For example, the value of American goods sold in Manchoukuo last year was more than four times the value of goods sold in the year of 1932 when the new State of Manchoukuo was created by Japan.

The position of the Japanese is based upon their conception of "a new order" in the Far East and they point to trade increases with the Occident to illustrate what Western Powers may expect to gain from Japanese exploitation of the resources of the Asian Continent. Two sources of statistics as set forth by John R. Stuart, Research Associate of the Far Eastern Survey, are the trade returns of the United States and Manchoukuo respectively. These figures are as follows:—

	U.S. returns: exports to Kwantung	Manchoukuo returns: imports from U.S.
1929	\$11,800,000	MY40,400,000
1930	6,400,000	32,300,000
1931-35 average ..	2,800,000	25,300,000
1936	3,500,000	23,700,000
1937	16,100,000	57,500,000
1938	17,000,000	83,000,000

The American returns do not recognize Manchoukuo as a separate entity, but show exports to Kwantung Leased Territory, which includes the Port of Dairen, the main port of entry for imports into Manchoukuo. The American returns, therefore, are deficient in two respects. They do not include imports through other Manchurian ports, and they do not include the considerable quantity of merchandise of American origin which is transhipped by way of Japan and, in former years by way of Shanghai and other Chinese ports. These last named defects also are true of the Manchoukuo figures. Indirect trade by way of Japan, it is known, measures into considerable volume, but no definite figures are available. It is possible that changes in trade in recent years have been brought about by changes in shipping routes, but in this again no definite details are available.

Despite these defects, the American returns may be said to be representative although they underestimate. The Manchoukuo figures disclose somewhat a larger volume but not greatly so.

This recent heavy increase of American trade has been injected into the controversy over the Open Door. The American attitude was strongly stated in the note of October 6, 1938, to Japan. To quote from that note: "Equality of opportunity or the Open Door has virtually ceased to exist in Manchuria. . . . A large part of American enterprise which formerly operated in Manchuria has been forced to withdraw from their territory as a result of the preferences in force there." This is undoubtedly true, and yet the United States is selling more goods to Manchuria than ever before.

The explanation is that when the State Department says the Open Door is practically closed, it is thinking of monopolies, exchange and trade controls, and other devices to oust foreign firms doing business in Manchuria. American businessmen are virtually excluded from doing business within Manchuria, but this does not prevent American manufacturers from selling goods to Manchuria. The oil business is an example. Instead of selling oil through their own distribution systems in Manchuria, the foreign oil companies now sell crude oil and oil products to the Manchoukuo Oil Monopoly. It is thus possible for the door to be closed and at the same time to sell more goods to Manchuria.

The Japanese stress the advantages of this direct trade. Under this system foreign agents are eliminated and imports are handled directly by the large semi-official companies such as the South Manchuria Railway Company and the Manchurian Industrial Development Corporation. According to the Japanese, the protests and resolutions of the Chambers of Commerce in Shanghai and Tientsin over violations of the Open Door can be ascribed to the fact that these bodies are dominated by commission agents and traders, the type of foreign middle-man that has been largely eliminated in Manchuria. A further point is that imports of consumption goods from foreign countries except Japan have been restricted, while purchases of machinery, rolling stock and metals have been greatly expanded.

The difference between the two viewpoints is largely a matter of interpretation of what is meant by the Open Door. In some respects it is a question of who handles the trade. It does not concern the earnings of workers in American factories producing goods for the Far East, and it does not concern the sales volumes of the American manufacturers who sell the goods to the Far East.

Interests that are prone to criticize every Japanese action while obliged to admit the existence of a flourishing American trade volume take a special tangent in attacking the Japanese in connection with this trade. Senator Gerald P. Nye, of North Dakota, recently presented a temperate viewpoint and expressed the belief that the State Department had not been entirely fair in accusing Manchoukuo of discriminating against American trade. This brought down upon the head of the North Dakota Senator the wrath of Mr. Cordell Hull, the Secretary of State, who declared that all the purchases made by Manchoukuo from the United States were abnormal and due solely to military needs. In rebuking Senator Nye in this manner Mr. Hull reiterated the charge that American business in Manchoukuo was being damaged by Japanese action. In this particular outburst it appears that the Secretary of State was somewhat less than 50 per cent correct. If he had specified that it was the American business agencies resident in Manchoukuo that were suffering loss he would not have been far off the mark, but when he declared that Manchoukuo's big purchases in United States were made up of war materials he invites an analysis of the actual nature of this trade which plainly fails to support the viewpoint that he presents. Below are given the facts as far as it is possible to determine them from a breakdown of American export figures for the three years 1936-1938:—

	(in thousands of dollars)		
	1936	1937	1938
Leaf Tobacco	253	191	197
Raw cotton	0	1,227	1,556
Gasoline and oil	781	3,361	4,037
Iron and steel products and other metals	537	6,207	4,424
Automobiles	789	1,625	1,908
Other machinery and vehicles	310	1,039	2,139

Japanese spokesmen assert that the heavy increases of American exports into Manchoukuo are to be explained almost wholly by the immense industrial expansion being carried forward under Manchoukuo's Five Year Plan. Tobacco and raw cotton are raw materials for factories in Manchoukuo and cannot be placed in the category of war material. It is possible, perhaps, to discover military uses for other items given in the table above, but it is possible also to construe the uses of these items for purely industrial

purposes. Part of the gasoline and oil may be for war purposes, just as much of the oil and gasoline imported into Japan Proper is used for Japan's military machine. It is reasonable to suppose that all of the oil and gasoline sold in Manchuria is for consumption in that country, particularly when it is remembered that a vast extension of omnibus transportation lines over the newly-created roadway system is being carried out. Of the iron and steel products and metals, part undoubtedly went into the manufacture of munitions, but to be consumed in Manchuria. Another part, such as rails and steel materials, assuredly is being used for new railways that are being built and for building construction. The automobiles and trucks in some part may have been for war purpose, but also and more likely they are being used on the expanding highways and the omnibus lines. The machinery, quite certainly, was bought in connection with projects being carried forward under Manchoukuo's Five Year Plan, including equipment for steel mills, mining and hydro-electric developments.

On the basis of these figures Secretary of State Hull is very far from right when he says that the large American exports into Manchoukuo were war materials. Only a part of these exports could be put to war uses, although it is possible, of course, to relate materials needed for the Five Year Plan to war purposes, because the Plan primarily is strategic in motive.

The aim in Manchoukuo is to build up heavy industries in order to make the Japan-Manchoukuo Economic Bloc more self-sufficient. Yet American exports to Manchuria of metals and machinery for new factories, steel mills, mines and power plants can no more be considered war materials in the narrow sense than similar American shipments to other parts of the world.

The question of future trade measures into some importance. The recent upsurge of American exports into Manchuria may be a temporary feature of the war situation. Manchoukuo has been buying more actively in the United States because she cannot obtain the materials she requires from Japan or from Germany.

This trade is already showing a tendency to slacken due to the lack of foreign exchange. It is to be accepted that as long as the war lasts, that Manchoukuo would like to buy even more in the United States, if she could command exchange or credits. The Manchurian market can be expected to become vital for Japan's heavy industries whenever the war in China is brought to an end. When this happens the heavy industries that have been expanded and have been put on double-shift working systems under stimulus of war demands, overnight may be brought to a pause unless outlets can be developed at once for products these plants can produce. Only by the opening up of markets such as might be found in Manchoukuo can a general dislocation in the operation of these heavy industries in Japan and of labor employed in the plants be averted. In such a situation it appears reasonable to expect that the present American trade between Manchoukuo may be eliminated. In time experts may discover how to grow in Manchoukuo or in North China the long staple cotton such as is now supplied from the United States. When this happens the market for American cotton, so immensely valuable to Southern growers in the States, may be lost. Also in time oil in sufficient quantities for Manchoukuo may be derived from coal or from oil shale, or some readjustment with Russia may be achieved so that the huge Russian output of oil can be directed into Manchoukuo will be brought about. These things might eliminate the existing American oil trade both in Manchoukuo and in China. It is to be foreseen also that steel products will be produced in the new steel mills that are being created to be supplied with ores coming largely from the Federated Malay Straits, the Philippines and from other points beyond the scope of purely American activity. In connection with this production of metal materials automobiles and trucks will be manufactured in the new plants of the great Manchurian Industrial Development Corporation that are to be brought into operation. In view of all of these possibilities it appears clear that any long-term outlook for American trade in Manchoukuo carries no certainties.

Sino-Japanese Relationships: My Conception and Aims

By WANG CHING-WEI

"The entire success of the Revolution in China is to a great extent dependent on the understanding of Japan," once said Dr. Sun Yat-sen, the late leader of the Kuomintang. There is a great deal of truth in this statement. Japan is a great power in East Asia, whose progress, economically and militarily, is such that it might almost be said that without Japan there is no eastern Asia. China is a backward nation, but she is a vast country with millions of inhabitants, whose history dates back to the dawn of human civilization. If China were to rise in power and wealth, would this benefit or harm Japan? If a strong and prosperous China were to her advantage, she would make friends with China; if, on the other hand, a strong and prosperous China constituted a threat to her in any form, she would, without hesitation, obstruct China's progress. Japan is already a Great Power whereas China is just starting on the road to progress. For China to go to war against Japan is therefore tantamount to striking a stone with an egg.

For this reason it is imperative that Japan must be made to realize that the success of the Chinese revolution will benefit rather than harm Japan. If Japan and China pursue the same policy as regards diplomatic and military affairs, and also, on the basis of equality and mutual interest, co-operate in the economic field, a strong China will certainly be to the benefit of Japan. But would this not mean an infringement of China's sovereignty? The answer is definitely "No." For the common interests which bind the two countries together could never prejudice the sovereignty of either one of the two parties. Again, would this not mean an interference with the privileges and interests of Third Powers? The answer is again "No." For the co-existence and co-prosperity of Japan and China is certainly not incompatible with the lawful rights and legitimate interests of Third Powers.

When Dr. Sun Yat-sen enunciated his "Program of National Reconstruction" for the guidance of the National Government in

Canton, he based China's Japan Policy on the strict observance of the principle above-enunciated. In 1925, after Dr. Sun Yat-sen's death I was made Chairman of the National Government and continued the same policy as Dr. Sun. But by 1928 things had changed, and the Tsinan Incident became the turning point in Sino-Japanese relationship. Nevertheless, grievances, personal or national, must be forgotten and not forever haunt our memories. Unfortunately, the National Government at that time did not seem to realize the wisdom of such an attitude. Thus, Sino-Japanese relations became worse and worse, culminating in the September 18 Incident in 1931. In saying this, I do not mean to discredit those who were then at the head of the Government. I was a member of the Kuomintang and held various positions in the National Government: therefore, nominally I was also responsible for any mistakes made. But I do want the public to take note of the fact that at the same time there was a warrant for my arrest and I was a political refugee abroad. On January 28, 1932, I returned to Nanking to become President of the Executive Yuan, and later concurrently Minister for Foreign Affairs. As such I advocated the policy of "resistance and simultaneous negotiation." It was, as it has always been, my policy to forget past grievances, hoping to achieve permanent peace for the whole country by a series of agreements settling local issues. For four years I failed to attain my aim, but I blamed nobody but my inability.

However, I have always opposed the tune sung so beautifully by the so-called "war group." Is not the advocating of a war between ascendant Japan and nascent China like playing with the fate of the nation?

When I read his statement to the nation issued after his resignation as President of the National Government in December, 1931, I was led to believe that General Chiang Kai-shek was animated by similar motives to mine, and I decided therefore to co-operate with him heart and soul. But in the course of these four years

I have often felt that things have gone wrong. On November 1, 1935, when I was convalescing, an attempt was made on my life. I was wounded in three places; my health gave way and I was obliged to go abroad for one year, only to come back after the Sian Coup. Things had gone worse than I anticipated. I urged that the fight against communism in China must not cease, because I knew for certain that the communists recognized no China, but only the Third International from whom they had received secret instructions to shelve the "class war" and press for the Sino-Japanese War. I, for one, would not allow the first awakening of China's national consciousness to be exploited. The public has on record my utterances and opinions during this period. Since the Marco Polo Bridge Incident, although I was unable, in any way, to prevent the war, I have spared no effort in exposing the plots of the communists and in trying to bring about the cessation of hostilities. On December 18, 1938, I finally left Chungking and on December 29, 1938, I published my Peace Proposals.

My proposals for peace were but a rejoinder to Prince Konoye's Declaration. Why did I do it? I am a confirmed believer that national differences, like personal differences, should be patched up and settled. Eighteen months of war had demonstrated the strength of Japan no less than the spirit and national consciousness of China. As Japan professed no territorial ambitions in China and offered the hand of friendship in active co-operation, why should not China respond, like a brother who is ready for tearful reconciliation? Had General Chiang Kai-shek the vision to see that Sino-Japanese relationship had reached a new stage of development and had the moral courage to respond to the Declaration of Prince Konoye, the door for peace would have been opened, and had he further opened negotiations to settle various details on the basis of the so-called "Three Principles" and aimed at serving the mutual interests of both nations, the foundation for permanent peace in Eastern Asia would have been laid, and the co-existence and co-prosperity of Japan and China might, without much difficulty, be systematically achieved.

Unfortunately, General Chiang Kai-shek would do nothing of the kind. Instead, he flatly refused Japan's peace overtures, and with a high-handedness typical of dictators, crushed all suggestions for peace within the Kuomintang and within China! And during the last six months, things have become even worse.

Neighborliness, a common anti-Comintern front, and economic co-operation; these three principles clearly defined in Konoye's Declaration, were first proposed by the Japanese several years before. At his interview with General Chiang on November 24, 1935, Mr. Ariyoshi, then Japanese Ambassador to China, proposed the three principles as a basis for the improvement of Sino-Japanese relations. General Chiang expressed his concurrence, adding that he had no counter-proposals. But subsequently, he changed his mind on the ground that (1) his statement could not be regarded as authoritative, as he was only the Chairman of the Military Affairs Commission and not the President of the Executive Yuan; (2) the statement was made only as a personal view, since the meeting was not official; (3) what he meant to accept was a discussion on the three principles, not the three principles themselves; (4) what he meant by leaving no counter-proposal concerned only the putting into effect of the three principles, but he did not accept the three principles themselves unconditionally.

In the months of December, 1937 and January, 1938, the Japanese terms as conveyed by Dr. Oscar Trautmann, the German Ambassador to China, were nothing but the three principles (These terms have been referred to in my previous statement entitled "Facts about the Peace Proposals").* The Konoye declaration was but a systematic record of the Japanese policy and clarified the points which were in doubt. We took cognizance of the fact that in the event of a common anti-Comintern front with Japan our military and internal affairs would not be interfered with, and Prince Konoye assured us that the Sino-Japanese front would, in nature and in spirit, follow the precedence of the German-Italian-Japan anti-Comintern Pact. As to economic co-operation, we were aware of the fact that the settlement of political issues was still pending, and he reiterated that Japan respected the integrity and sovereignty and independence of China, that Japan had no desire to monopolize China economically, and that she would not demand that China place restrictions on the interests of Third Powers.

These assurances are enough to show that the realization of the "three principles" would not hinder the liberty and independence of China. Moreover, the principal outcome of the anti-Comintern

pact and economic co-operation would serve to drive the evils of communist sabotage and economic aggression out of eastern Asia. It is a great task. It goes without saying that since Japan desires China to participate in the task, China must gain sufficient freedom and independence before she is strong enough to share the responsibility. Our acceptance of the Konoye Declaration is not for temporary appeasement, but in the interest of permanent peace in East Asia. Why should we maintain an attitude of complete refusal?

General Chiang Kai-shek's propaganda often maintains that as Japan is mobilizing all the forces in her power to conquer China the so-called "three principles" are but a pretext. This is not the case. Firstly, if Japan were just to conquer China, she could continue the war without any pretext. Secondly, the "three principles" have been in existence for several years and the Konoye Declaration merely established them as Japan's national policy, unanimously supported by Japanese public opinion. They cannot be regarded as a pretext. Thirdly, should there be no common objective between China and Japan, conflicting interests will inevitably be the result of the rupture of the two nations. Conversely, a common objective correlated with common interests will make conflicts impossible. Fourthly, the failure to effect an improvement in the relationship of the two nations in the last few years can only be attributed to the "cycle of revenge." For instance, Japan says: "Chinese animosity against Japan is the cause of the Mukden Incident." China says: "Japanese aggression is the cause of the Chinese animosity." Japan says: "China has to give up the policy of 'playing up one barbarian against the other' before Sino-Japanese relations can be improved." China says: "Japan has to give up her aggressive policy towards China before Sino-Japanese relations can be improved." As so on, and so forth. They accuse each other, expecting that the other party take the initiative to better the situation. This can only serve to worsen the situation.

Now that there is a common objective before us, it is up to us to exert ourselves. We must ourselves act before we can expect others to act. We must censor ourselves before consoling others. Such a course would make progress easier, and shorten the road to success. In this way, the Sino-Japanese conflicts of the past will be settled, the horrors of the present war brought to an end, enabling both nations to embark on the road of national rehabilitation, co-existence and co-prosperity.

Then, why should we refuse to talk peace and go on playing with the high-sounding word of "resistance?" We must realize the fact that during the present war the rank and file of the army and the common people have amply demonstrated that the national consciousness and spirit of China cannot be destroyed. At the same time we must also realize that the communists are exploiting this new-born national consciousness to overthrow the Nation, which is only natural because they have no sense of nationality and do not carry out any instructions other than those issued by the Third International.

They want to sacrifice China; so the greater the extent of territory occupied, the greater the number of her nationals sacrificed, the longer the process of sacrifice, the better it will be for the Communists. China has to be sacrificed in her entirety, while Japan must be made to suffer too. So, from the point of view of the Third International it is just a plan to kill two birds with one stone. Especially when the Chinese communists can get hold of General Chiang Kai-shek as their leader to avenge themselves for the grievance they suffered during Communist-banditry suppression campaigns since 1927. Having accomplished their aims they will go back undisguisedly to the Third International. This is why they insist on "resistance to the bitter end," when there were opportunities for restoring peace. This means that China will never have peace but must be sacrificed to the Third International. In a word, the communists have committed a greater crime than the Boxers, while those who are made use of by the communists are also committing a crime greater than that committed by Kang I and his gang. True, there were loyal and brave soldiers and citizens, and yet the most they could do was to follow the footsteps of Admiral Nieh Shih-cheng. Faithful unto death they were, but their death could not save the fate of the nation. A wiser step was taken by Liu Chun-I and Chang Chih-tung who

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*The Far Eastern Review, May, 1939.

Japan Faces a European Crossroad

By TSURUMATSU OKAMOTO, Assistant Editor, The Tokyo Asahi

(China Press Magazine)

HERE is no gainsaying the existence in Japan of *pro* and *con* opinion about the question as to whether the anti-communist pact shall be strengthened or not. It will be of especial interest to expound these two sets of opinion in so much as it will enable the world to surmise the present trend of Japanese foreign policy. But as a preliminary step it is well to recall how Japan signed the anti-Communist Pact with Germany on November 25, 1936. At least two factors can be adduced to the conclusion of the pact which was joined by Italy later.

- (1) Their common antagonism to the subversive nature of Bolshevism.

This antagonism was intensified when the Soviets changed their tactics and approached the democratic powers as was evidenced by the adoption of the new "Popular Front" policy.

- (2) Their common feeling as "dissatisfied" or "have-not" powers.

Although in the first factor ideological sympathies are a chief ingredient attracting the two powers together such an abstract element might hardly necessitate the conclusion of a diplomatic agreement, for such would be an act of killing a fly with a hatchet. It was rather the Soviet's change of tactics for making common front with the democratic powers under the slogan of "popular front" against the fascist powers that caused the *rapprochement* of the two "have-not" powers which was culminated in the signing of the pact. Then the logical thesis underlying the pact is that it is aimed not against the U.S.S.R. alone who is responsible for communistic propaganda, but any power which might join the Soviets against the "have-not" powers. This is a *a priori* conception of the pact and constitutes the second factor mentioned above.

"Have-Not" Powers Organize

Germany is the greatest sufferer from the conclusion of the Versailles Treaty, while Italy is not fairly treated by the same peace treaty although she joined in the Allied cause against Germany. As to Japan her development has been unjustifiably interrupted. Everywhere her emigrants are vetoed entrance. The population which is increasing by a million a year is a vital question claiming an immediate solution. When the outlet of population is closed everywhere the only way of solving the question is to feed them at home by importing raw material from abroad with the money obtained through exports of the goods manufactured at home. But even this sole means of her subsistence is threatened because Japanese goods are being shut out by high tariff walls.

It was but natural then that these dissatisfied powers should have united against what they might call their common persecutors, whose sense of "justice" has rejected the Axis powers' legitimate demands for a place in the sun and has driven the "have-not" nations into the position of mere hewers of wood and drawers of water in the world of economics.

So much for the underlying reasons for having evoked the Anti-comintern pact. Now with the intensification of international crises in Europe there has arisen a question of converting the "ideological" pact into a military alliance. As far as Germany and Italy are concerned this question has already been solved by the conclusion of a political and military agreement on May 7. The remaining question is, therefore, whether Japan will join the alliance.

There is no denying the fact that at the time when the anti-communist pact was first concluded between Japan and Germany the leaders of the political parties and the press editorials in Japan lacked enthusiasm in receiving the announcement of the agreement, and some even criticized it on the ground that it would antagonize the democratic powers as well as the U.S.S.R. against whom it is intended. Since the Sino-Japanese clash occurred in 1937, however,

the critical attitude of public opinion towards the pact has gradually given place to that of supporting and even admiring the pact. When, however, the nation is confronted, as they are at present, with the serious question of deciding whether or not the pact shall be strengthened into a political and military agreement, their opinion is naturally divided.

Businessmen Said Opposed

Now let me first introduce the opinion of those who hesitate to support the conclusion of a military alliance.

The opinion against the alliance with the Axis powers is not expressed in any form whatever under the present circumstances, but it is easy to conjecture it from lobbyists, the man-in-the-street, or even between lines of articles written by the literati and publicists.

As a matter of fact those who are opposed to the strengthening of the pact may roughly be divided into two classes. Those of the first class are Anglo-Saxonophile statesmen, politicians, etc., who still indulge in reminiscences of the days of the Anglo-Japanese Alliance, and who pay a great respect to the form of government and political institutions of the United Kingdom. And then the big industrialists may also be included in this class. They are opposed to the strengthening of the pact, as it will, according to them, inevitably antagonize the democratic countries and badly affect Japanese commerce since the democratic powers constitute the greater portion of market for their products. They are of the opinion that Japan has nothing to gain by interfering in European war which will mean to Japan more liabilities than assets.

The opinion stressing the political alliance with the Axis powers is expressed in journals and magazines, but perhaps the most representative will be that recently published in Tokyo by Mr. K. Honda, well-known retired diplomat, and former Japanese Ambassador to Berlin. He is of the opinion that it is fundamentally impossible to effect a *rapprochement* with Great Britain who is allied with the U.S.S.R. since Japan is one of the leading members of the anti-communist pact.

The question whether the scope of the anti-fascist military alliance will include the Far East is of a secondary importance. The strengthening of the anti-comintern pact and Japan's efforts to win the assistance and sympathetic understanding of the democracies for the building of a new order of East Asia are quite incompatible, and the reality of the present international situation does not permit her to play such a double game.

Even supposing, he says, that Japan had no relationships with the fascist countries, the democratic powers would not accept Japan into their own circle of "satisfied" powers since she is sending a big army into the Asiatic continent in order to establish a new order of East Asia. The hatred of Japan and Germany shown by the democratic nations is due to their common conception of the world affairs, that the satisfied and unsatisfied powers confront each other, and cause the present world unrest, and it is not due to the difference of ideology or the forms of government.

Honda Says Scope of Pact Must be Confined

Mr. Honda advances the idea that in dealing with the present international situation the best policy to be adopted by Japan is to confine the scope of the pact with Germany and Italy to the present anti-comintern understanding. According to him such an opportunist policy will by no means secure any gains to Japan; on the contrary it will defeat its own purpose. He thinks that such a cowardly policy is often resorted to by a weak state situated between two opposing powers, and a glance at the political situation in Europe will reveal examples of weaker nations playing that dangerous game.

Mr. Honda then proceeds to advocate the conclusion of a mutual assistance treaty among the three powers for the protection of their

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From a Chinese Traveler's Note Book

Things the Chinese National Government has achieved and plans and aspirations of the Government to bring to realization ambitious projects that may mean the creation of an inland Empire in the distant western hinterland of the country under the rule of the new Capital of Chungking in Szechuen, are described in the following series of sketches contributed by a Chinese traveler and writer. From what he presents it is to be seen that much has been done. It is apparent, too, that immense undertakings remain to be carried out in the future.

* * *

Old China's Modern Highways

To develop international trade and inland communication by providing easy and rapid transportation, the Chinese National Government, besides starting the construction of a network of railways, has also undertaken the building of a vast system of motor highways in China's western provinces. Already 3,224 kilometers of new motor roads have been opened to traffic since the war broke out in July, 1937, and a number of new communication arteries are under construction.

The first modern motor road built in interior China was the 58 kilometer highway connecting Changsha, capital of Hunan Province, and Siangtan, a town south of Changsha, by the Hunan Provincial Government. That was back in 1913. After that, sporadic and unco-ordinated road construction was carried out by the central government and various local authorities. Beginning from 1928, the Ministry of Communications and the then Ministry of Railways of the National Government—the ministries were combined early in 1938 for economy and better efficiency—attempted the elaboration of a network of national highways in accordance with the reconstruction program of the late Dr. Sun Yat-sen, father of the Chinese Republic. This work was later handed over to the National Economic Council, which began its work in 1931 and was formally inaugurated in 1933 with the help of the League of Nations. It was dissolved after the start of the present hostilities. The policy of the Council was to bring into being a system of roads connecting the important commercial and political centers of different provinces, especially those in regions not fully served by railways. Accordingly, a three-province project, including Kiangsu, Chekiang and Anhwei, was planned in the beginning of 1932. With Nanking and Hangchow, capital of Chekiang Province, as centers of this highway system, six trunk lines of an aggregate length of 1,043 kilometers were completed and opened to traffic at the beginning of 1933, at a construction cost of about \$6,000 per kilometer.

Encouraged by the great advantages derived and the rapidity with which these roads were built, the Chinese government decided to double its efforts. A seven-province project, including Kiangsu, Chekiang, Anhwei, Kiangsi, Hupeh, Hunan and Honan, was mapped out at the end of 1932. This plan called for the construction of 11 trunk lines and 63 branch lines, with an aggregate length of 22,624 kilometers, within three years. The general pacification of the country during the years 1933-1935 made it possible for the government to enlarge its highway building plan to include the provinces of Fukien, Shensi, Kansu and Chinghai. Many new projected lines were added to the original plan, and the goal set then was 30,144 kilometers of national highways. Of this amount, 23,876 kilometers were completed by the end of 1936, and the rest were undergoing construction.

These lines, with Nanking and Sian, capital of Shensi Province, as their centers, were to connect the southeastern provinces with the north-west. The most important of these lines are the Nanking-Kunming highway, connecting the national capital and the capital of Yunnan Province, of about 2,400 kilometers, and the Sian-Lanchow highway, connecting the capitals of Shensi and Kansu Provinces, of 748 kilometers. They help to link central China with the far-off south-west and north-west. After the completion of the Nanking-Kunming highway, which gave Nanking an overland road to French Indo-China, the National Government sent a special investigating group to tour the new road with a cavalcade of 40 trucks and buses as a fitting commemoration. With these various arterial highways connections have been made with provincial

and local highway systems, and have rendered about 120,000 kilometers possible for motor traffic. And 7,000 kilometers more of modern motor roads were either under construction or projection at the beginning of 1937.

Since the present hostilities began, however, highway construction of the Chinese Government, heretofore carried out without any hitch, had to be modified in face of difficulties imposed by the war. Part of the original plan had to be abandoned because of the threat of Japanese occupation of some of the territory those roads were to pass through. Subsequently the Ministry of Communications concentrated its attention on construction in the western provinces to meet the requirement as China's base for war. As a result of this effort, 3,224 kilometers of new roads were completed by the summer of 1938. Of these, the most important one is the 850 kilometer Yunnan-Burma Road from Kunming to the border of British Burma. This road, built entirely by manual labor without the aid of even the most primitive machinery, was completed in six months. Considering the difficult terrain it passes through, where the road had to scale semi-precipitous mountains and deep gorges, the road is indeed a fine tribute to the Chinese engineers and workers on the job.

Another road of equal importance is the 2,400 kilometer Kansu-Sinkiang highway, which runs from Lanchow, capital of Kansu Province, to Tihua, capital of Chinese Turkestan, as Sinkiang is otherwise known. This road, with connections from Tihua to the Soviet border and from Lanchow to Chengtu and Chungking by way of the 748 kilometer Sian-Lanchow highway, the 466 kilometer Sian-Hanchung highway, the 550 kilometer Hanchung-Chengtu highway, and the 550 kilometer Chengtu-Chungking highway, brings China much more closer to northern Europe than ever before.

Besides these two international highways, many new motor roads, with Chungking as the center, are now under construction to connect the important towns of the southwestern provinces. The Szechuen-Yunnan highway, connecting Chungking with Kunming by way of Lunghang, 100 kilometers west of Chungking, is now near completion. The Szechuen-Sikang highway, connecting Kanting, capital of Sikang Province, and Chengtu, is now being cut through the mountains in eastern Sikang. Meanwhile the Chengtu-Chungking, Szechuen-Hunan, Szechuen-Kweichow, Szechuen-Hupeh, and Szechuen-Shensi roads, at an aggregate length of about 9,000 kilometers, were recently thoroughly repaired by the government at the cost of \$13,000,000 in order to meet the demand of the increasingly heavy traffic. And more than \$52,000,000 worth of motor vehicles were ordered for transportation on these highways.

The special offices, the North-west Communication Department and the South-west Communication Department, have been created jointly by the Ministry of Communications and the National Military Council, to help the various local governments' motor transportation problems. Each of the two offices has a large fleet of new, fast, and powerful trucks and buses at its disposal for the transportation of passengers and commercial goods on these highways in China's south-west and north-west.

Meanwhile, the Ministry of Communications, not forgetting the numerous farmers along the various highways, and following the example of the Shensi Provincial Government, decided to build a large number of Chinese carts, equipped with old rubber tires and drawn by animals, for short distance transportation to supplement motor vehicles. These "modernized" carts are financially within the reach of common farmers. The adaptation of this transportation means will enable Chinese farmers to make more use of the network of highways and thus help economic development in rural territories. Besides, with short distance transportation taken care of by these rubber-tired carts, motor vehicles and gasoline can thus be saved for more important purposes. Thus transportation, both modern and ancient, is assisting the exploitation of China's western provinces by full use of these new motor highways.

* * *

Hydro-electric Power for Yunnan Province

Two man-made waterfalls are pouring upon five German Siemens-made turbines along a two-kilometer channel which

diverts a torrent in a heavily wooded valley near Kunming, generating hydro-electric power for the Yunnan Provincial Capital. This hydraulic power plant, known as the Yao Lung Power Plant was established with technical help from German engineers in 1910. It has lighted Kunming city and supplied power for its nearby factories for about 30 years. Now it is undergoing further expansion to meet the demand of an extensive industrialization program which the Chinese Government has launched in the southwestern part of the country since the war.

The plant, which had an installed capacity of 1,450 horse-power at the beginning of its history, now generates 3,370 horse-power with its five turbines. The Hydraulic Power Department Bureau of the National Resources Commission of the Ministry of Economics, with the co-operation of the Yunnan authorities, is now launching a two-year plan for the expansion of the plant with a capital of \$6,000,000. When completed, the plant will be able to supply electricity for the entire Yunnan Province, which is rapidly becoming one of China's industrial centers.

The present equipment of the plant consists of five German-made generators. Two of them are capable of generating 900 horse-power each, two 560 horse-power each, and the smallest 450 horse-power. The newest of the five is a 1937 Siemens product and was installed in 1938, whereas the oldest machine now in operation is a 1927 model. More new generators are on their way from abroad to enlarge the plant and to replace the older ones.

The enlargement of the water channel leading to the plant is also proceeding with scores of men on the job. The new channel is six meters wide, two meters deep, with a flow of 20 cubic meters per minute. It will be able to supply water enough to generate 6,000 horse-power. Now and wider channels will be cut when the plant is further enlarged.

Power generated by this plant is sold at ten cents per kilowatt-hour for lighting purpose, and even less for industrial usage. This price, incidentally, is the cheapest in China. The authorities of the plant believe that the price can be further cut down when the plant is enlarged and when the electrification of Yunnan is completed.

Of China's more than 40,000,000 horse-power of potential water power, the southwestern provinces have an estimated minimum of 19,250,000 and a maximum of 25,750,000 horse-power, of which, Yunnan Province claims 2,200,000 to 3,000,000, only next to Szechuen's 15,500,000 to 20,700,000 horse-power. Of Yunnan's two to three million horse-power, the Putu River, which flows into the Golden Sand River and with Kunming on its bank, claims about two-thirds. It is for the purpose of harnessing this enormous amount of power for the industrialization of Yunnan Province that the expansion of the Yao Lung River Plant is now being pushed.

* * *

Mineral Development in Yunnan

Serving as the main international link between China and the outside world, Yunnan Province is fast becoming the nation's leading economic unit.

Exporting over 85 per cent of China's tin production which annually yields to this southwestern frontier province \$30,000,000, Yunnan to-day is keeping pace with Szechuen Province in developing its rich natural resources and starting new industries. It is to the vast economic possibilities of this province that world attention is now turned. From the South Seas alone, overseas Chinese have already decided to invest \$50,000,000 for developing Yunnan into a thriving province; while financial and technical co-operation from foreign countries and concerns will also be forthcoming as means of communication are improved, according to the provincial authorities.

In the high tablelands of the cloudy province of Yunnan are found some of the nation's richest mineral deposits. Lead, tin, copper, salt, iron, zinc and silver are found and the coal produced from one Yunnan district alone is not only supplying the needs of the Kunming-Haiphong Railway but is also selling in French Indo-China. The annual coal output from Yunnan is being increased from its present production of 750,000 tons.

China contributes about 70 per cent of the world's total production of antimony. Besides, she supplies 40 per cent of the world's total output of tungsten. Excepting Hunan and Kiangsi provinces, Yunnan is the largest producing center of these metals in China. At present, the antimony-tungsten development com-

pany of the Yunnan Finance Department is monopolizing the mining and marketing of these mineral products which are enjoying a high demand due to the armament race in various parts of the world.

Copper is produced in more than 80 out of some 100 districts of Yunnan Province, which is the richest and the oldest producing center of the metal in China. At one time the province annually produced more than 3,000 tons of copper. The provincial authorities are trying to maintain at least this maximum production level for the next few years. In striking contrast with its neighbor province of Kweichow which produces very little salt, Yunnan is a big salt-supplying center. Its production of this important commodity has been increased from 595,900 quintals in 1933 to 959,100 quintals in 1937.

According to the statistics of the provincial reconstruction department, Yunnan, which has an area of 320,051 square kilometers and 12,000,000 inhabitants, has some 700,000 acres of uncultivated land. Over 45 per cent of the adults are farmers. Only 12 per cent are laborers and three per cent are merchants. Hence as far as the occupations of the natives are concerned, Yunnan is largely agricultural and its farm produce is usually sufficient for domestic consumption. The reconstruction department reported that in 1938 Yunnan produced 34,312,376 quintals of rice, 2,305,672 quintals of wheat, 1,860,129 quintals of barley, 14,770,863 quintals of corn, 3,969,804 quintals of peas, 10,661,913 quintals of potatoes. Through the complete eradication of poppy cultivation from Yunnan at the end of last year, the provincial authorities expect that farm products will increase by at least 25 per cent over the previous annual levels. In many of the fertile fields where opium once grew scientific plantation of cotton has been introduced.

Throughout mountainous Yunnan Province are found many forests. Palms, caoutchouc, cactus and fir-trees are abundant in the valleys and along the ravines. The province's 133 forestry bureaus have altogether more than 3,900 reforestation areas covering some 1,350,000 acres of land. The whole province has more than 1,600,000 acres of well-wooded mountainous regions on which are largely grown pines and cedars.

Yunnan, because of its climate, topography and soil, is ideal for cattle-raising. Thousands of cattle are grazed on the abundant open green pastures. The export of animal and animal products usually nets the Yunnanese many million dollars. A large part of Yunnan Province is on a plateau; there are many fresh water lakes where fish and marine products abound. It has been estimated that Yunnan which has over 4,400 registered fishermen annually produces more than 2,752,000 catties of fish alone.

Of the Yunnan products, perhaps none can excel its ham and P'ueul tea in popularity. Every year more than 40,000,000 catties of P'ueul tea and 1,500 quintals of ham are produced. In addition over 30,000,000 catties of sugar and tens of thousands of catties of medicinal plants are marketed domestically and internationally. These products, together with its mineral exports, are responsible for the favorable trade balance of Yunnan which amounted to over \$2,700,000 in 1938.

* * *

Chinese Hydraulic Engineers Kept Busy

Hydraulic engineering works aiming at the improvement of existing irrigation and navigation systems, and the building or finding of new ones, are functioning at full wartime pressure in China's northwestern provinces. Laboring on numerous projects destined to facilitate transportation or to turn parched areas into centers of productivity are hundreds of experts who formerly worked in places that have since become war areas.

Rainfall is scarce in the North-west and droughts are frequent. Both as preventive and productive measures, the Chinese Government in the pre-war years spent huge sums of money in building irrigation systems. Last year in spite of, or rather because of, the war, the construction work on two new water projects were rushed to completion.

The first one known as the Meihui Canal is now watering about 33,400 acres of erstwhile uncultivable land in Meih sien about midway between Sian and Paochi, the western terminus of the Lunghai Railway. The total cost amounted to \$540,000. Over in Kansu is the second system also finished in 1938. Bearing the name Taohui Canal after the Tao River whence comes the water. It has turned 6,000 acres of barren soil into productive tracts.

Now fast approaching completion is the Lohui Canal in Shensi. Situated between Pucheng and Tali, it will upon its completion be able to irrigate an area of 83,400 acres, thus increasing the annual agricultural yields by \$5,000,000. All important work on this canal has been finished with the exception of its No. 5 tunnel, where the presence of quicksand and groundwater impeded progress considerably last year.

In addition, there are two new irrigation ducts which have been planned and on which construction work will be started soon. They are the Heihui and Yenhui Canals, both in Shensi. The former can bring water to 16,700 acres of land, while the latter to 28,400 acres of land. Still in the blue-print stage is the Niehui Canal in Kansu near its provincial capital Lanchow. Later it will irrigate 5,000 acres of land.

Then in the five southwestern provinces, Chinese hydraulic engineers have also been busy in turning waste land into fertile fields. In Szechuen, five new irrigation districts have been set aside. Work on the first was actually begun last October, while that on the remaining four will be inaugurated shortly. Meanwhile, four irrigation districts have been planned in Kweichow, four in Kwangsi, an extensive one in Hunan affecting 20,000 acres of land, and an even larger one in Yunnan where 66,700 acres of land will be put under plows.

Take 8,300 acres as the average size of the irrigation districts in Szechuen, Kweichow and Kwangsi, the aggregate area will be 103,400 acres. These, plus the area estimates already individually given, will amount to about 675,000 acres of soil that will become productive through irrigation.

The second principal item now occupying the time and energy of Chinese hydraulic engineers pertains to communications. In the southwestern territories, there are numerous rivers. Many of them have been navigable down the ages, but need improvement. As water provides the cheapest form of transportation, and most of the railroads are in war zones and as highway transportation is prohibitively expensive for ordinary cargoes, the network of streams under Chinese control is now naturally receiving considerable attention from the Chinese authorities.

For instance, pouring into the Yangtze a short distance above Chungking is the Ki River. It leads to Kikiang and one of the most promising iron mines in Szechuen Province is being exploited. In the past, because of rapids and hidden rocks, only flat-bottom boats could navigate it. Late last year work was started on the river to canalize it. When finished, large junks will be able to sail up 140 miles from its confluence with the Yangtze to bring down a daily freight of 1,200 tons.

In the meantime, experts are improving the channel of the Ou River from its confluence with the Yangtze at Fuling below Chungking to Kungtan on the Kweichow border. Others have been assigned to lengthen the navigable channels on the Kialing River, the Tsingsui River and the Yentsin River in Szechuen. Due to sand bars, some are navigable only to a certain point, or are navigable only during the high-water season. These streams are now being dredged at different sections with a view to making them navigable up to their headwaters and throughout the four seasons. Other engineers are increasing the navigability simultaneously of various rivers in Hunan and Kwangsi.

It is estimated that when these different improvement projects are completed, the length of navigable streams in these southwestern provinces will have been increased by 2,400 miles.

* * *

Rebuilding China's Steelworks

Six months ago, in a serene Szechuen village a day's march from Chungking, the people lived the peaceful life common to their forefathers, thousands of years ago. Now more than 1,000 men are busily dynamiting rocky hillocks, levelling patches of rice fields, building unpretentious houses, and installing machines. And in another six months, it is planned, a new steel factory will have arisen, pouring out 8,000 tons of crucible steel and 10,000 tons of commercial steel every year. Thus, another one of China's steelworks will start its fiery life in the nation's golden west.

Forming one of a chain of steel works and arsenals, this plant will devote itself mainly to the manufacture of high grade steel to supply the demand of various arsenals and factories for the making of munitions as well as industrial machinery. The plant will co-operate with another factory under construction by the

commission of Factory Removing and Reconstruction organized jointly by the Ministries of Economics and War. The new steel works will form an important unit in China's heavy industry program in her inland provinces.

A total of \$2,600,000 has been allotted by the War Ministry to rebuild the factory on its new 250-acre site. Besides its own force of 600 workmen, more than 400 local coolies are moving a large number of bulky machines to the levelled grounds. Already a locomotive and a huge crane have been carried overland by these strong arms—for these workmen have no other machine than their arms for their work.

The factory is to begin work with a 10-ton Bessemer converter and two electric furnaces of three and one and half tons respectively. Pig iron, charcoal, and other materials needed in the manufacturing of steel in this factory will be supplied by the Chikiang Iron Mine and the Nantung Coal Mine, both in Szechuen, and other related factories and mines operated by the Ministries of Economics and War. More furnaces are to be added to the factory later in order to increase its production to meet the rising demand for steel in time of war as well as peace.

Machines of this factory, some salvaged from a down-river arsenal and some from a former Government steel factory in Shanghai, were in most cases brought up the Yangtze by steamers. The machinery from Shanghai had to be moved out from the second arena of war on junks by way of the Soochow Creek, the Grand Canal and the Yangtze River, the distance to Szechuen being about 1,450 miles.

The factory was located for a few months in Hankow before its removal to Szechuen in 1938. There in the central Yangtze city besides melting steel for arsenals and factories, it also made, among other things, aerial bombs for the Chinese Air Force. Its 500-kilogram and 200-kilogram bombs sunk or damaged many Japanese warships and transports during the battle of Hankow. This part of its work will also be resumed in Szechuen as the factory has brought with it a large number of bomb shells ready to be filled up with explosives.

Pending the completion of the plant and the installation of converters, furnaces, and electric generators, the factory's skilled laborers, mostly from down-river, are now engaged in the manufacturing army picks and spades as well as their own working tools. Some of them also help in levelling the ground and in the installation of their own machines. These workmen, together with their families, are all living in new "model villages" erected by the factory on the surrounding hillsides. A consumers' co-operative store supplies their daily necessities. A clinic and a school will also be established by the factory authorities in the future.

Sino-Japanese Relationships: My Conception and Aims

(Continued from page 270)

defended the southeastern part of China, and by Li Hung-chang who braved the invading armies and entered Peking to conclude a truce.

I see that there are two roads before us now. One is to follow the lead of General Chiang Kai-shek's high sounding words of continuing resistance. The present military strength of the forces under his command is not adequate to resist Japan, nor to keep control of the communists either. He might not be desirous of being dragged along by the communists, but circumstances will force him. In this case, the only outcome will be that the entire nation will be sacrificed for the sake of General Chiang Kai-shek, acting on behalf of the communists. The other one is to take steps to bring again into realization the teachings of our late leader, Dr. Sun Yat-sen. As to the wrongs and grievances with Japan, we have to forget, patch up, and settle, striving to turn enmity into friendship. The first step will be the restoration of peace between China and Japan. The next step will be the maintenance of peace in Eastern Asia.

The road of General Chiang Kai-shek leads to the extinction of the nation, whereas the other road leads to the re-birth of China and to the restoration of prosperity to Eastern Asia. I have decided to go along the road leading to the re-birth of China and to the restoration of prosperity to Eastern Asia. I have also decided to unite all my comrades, be they members of the Kuomintang or not, and lead them along this road.

Radio in Japan Now Housed in New Magnificent Home

By W. HARVEY CLARKE, Jr.

RADIO broadcasting in Japan, during little more than the past decade, has acquired an increasingly significant place in the daily life and social economy of this insular nation, not only as a medium for information and varied forms of entertainment but, under government sponsorship and superintendence, as a facile channel through which the minds of the people may effectively and readily be reached.

Public approval of this lately novel means for mass communication has been amply demonstrated by the fact that licensed owners of radio receiving sets at the end of July, 1928, numbered only 5,892 throughout Japan, whereas to-day the total is fast approaching four and a quarter million subscribers. Served by 35 broadcasting stations located in as many key cities of the country, Japan Proper, with an average of two dozen receiving sets for every 100 households, now ranks fourth in the world in the number of radio sets used. Such rapid growth within so few years has been due in part to periodically lowered monthly license fees as well as to the reduced initial cost of receiving equipment.

As one concrete symbol evidencing the recent advancement made in Japanese radio broadcasting facilities, the new home of JOAK and headquarters of the Broadcasting Corporation of Japan, equipped with the latest transmitting and receiving apparatus in the Far East, has risen in Kojimachi Ward, Tokyo, on a 3,003.41 sq. meter building site having a lot area of 3,934.45 sq. meters. Taking just three years to erect, from ground-breaking on October 20, 1935, to completion on December 20, 1938, the ¥4,340,000, six-storey, strictly modern structure, with a 2,981.03 sq. meter basement and three penthouse floors, extends upward for 37.57 meters from the sidewalk to the roof of the penthouse and about 11.63 meters further to the top of the antenna tower.

Designed by Toshiro Yamashita and contracted for by the

Takenaka Company, the building, which covers a total floor area of 16,714.88 sq. meters, is a steel and reinforced concrete structure erected upon a caisson base. All windows of the building are equipped with Fujit type airtight steel sashes, and those facing east overlooking the trolley line have double casements to help reduce the entrance of noise from the street.

It is a known geological fact that the ground in the vicinity of Hibiya Park, near which the JOAK Building stands,

is sinking at an annual rate of about six millimeters. In order to counteract this gradual settling of the land as much as was feasible and to forestall any necessity of repair work for several years to come, foundation stone surrounding the building was laid to a depth of 30 mm. (about eight inches) in the course of construction. Particular attention, also, was paid to the future possibility of water and gas supply and sewerage pipes being cut by the slowly subsiding ground.

Different kinds of stone used for foundation laying, outer facing and interior decorating came from widely separated native as well as foreign localities, as follows:

Kurahashi granite from Hiroshima Prefecture (commonly called "diet" granite, as much of it was used in the Diet Building).

Mannari granite from Kitagi Island, Okayama Prefecture.

Belgian marble.

German travertine (tufa).

Ryukyu " from Okinawa Prefecture.

French pink marble.

Italian "

Marble from Yamaguchi Prefecture.



Thoroughly soundproof and air-conditioned, JOAK's new 16,714.88 sq.m. home and headquarters of the Broadcasting Corporation of Japan stands in the heart of Tokyo, where it took three years to erect at a cost of ¥4,340,000. The latest transmitting and receiving equipment in the Far East is used



Outer foyer, inside the front entrance, with alcove of the information office visible at far side of passageway



Three varieties of colored marble imported from Europe and one of native origin from Yamaguchi Prefecture cover the walls, floor and columns of the inner entrance hall in front of the main elevators

A studio for broadcasting would be inadequate should extraneous sounds from within or noises from the outside be transmitted through the microphone to the listening public. In such a studio, consequently, the reverberation time of sounds must be known and controllable. It is essential for this reason that satisfactory soundproof and sound absorbing materials be used in construction. As the JOAK Building was to face a busy thoroughfare in the heart of Tokyo, broadcasting rooms were isolated completely from street and other noises.

All rooms provided for broadcasting in the new building are thus surrounded by a series of offices and waiting rooms. The studio units, most of which include an adjacent sub-control room, an announcer's box and an audience balcony, are isolated in groups from the business offices of the building. The studios and their adjoining rooms are supplied independently by the air conditioning system, which constantly replenishes the air in each unit. The atmosphere is also sterilized by high tension mercury arcs. With a 50 per cent relative humidity maintained during all seasons within the building, the temperature in summer is kept at about 26.5° C. (80° F.) and 18.5° C. (65° F.) in winter. A total of 14 studios is provided for the broadcasting of musical programs, lectures, news, etc., including the Grand Studio, in which accommodation has been made for television broadcasting.

The interior design and the dimensions of the various studios are calculated from the standpoint of acoustics. All material used in their construction, such as mineral felt, metal sheeting, Platon veneer boards and tapestry, which build up ceilings, walls and floors, vary in sound frequency, absorption and reverberation properties, according to the nature of the broadcast. These materials, all of domestic manufacture, were selected after careful examination for their acoustical advantages.

For soundproofing the interior surfaces of the studios are supported by a "floating" structure cut off by sheets of felt and cork from the main building of steel framework and reinforced concrete. At the contact points between the two these

other material shut out the transmission of sound vibrations from the main structure. The relation between the lining and the supporting structure is indicated in the accompanying cross sectional sketch.

Super high tension mercury arcs and 1,378 ordinary tungsten filament globes are used for artificial lighting purposes. The building is also equipped with 498 plugs. The different shapes of the light fixtures and the material from which they are made were selected for their acoustic merit, to limit the reverberation and resonance of sound waves. Prismatic glass is employed to add to the uniformity of illumination.

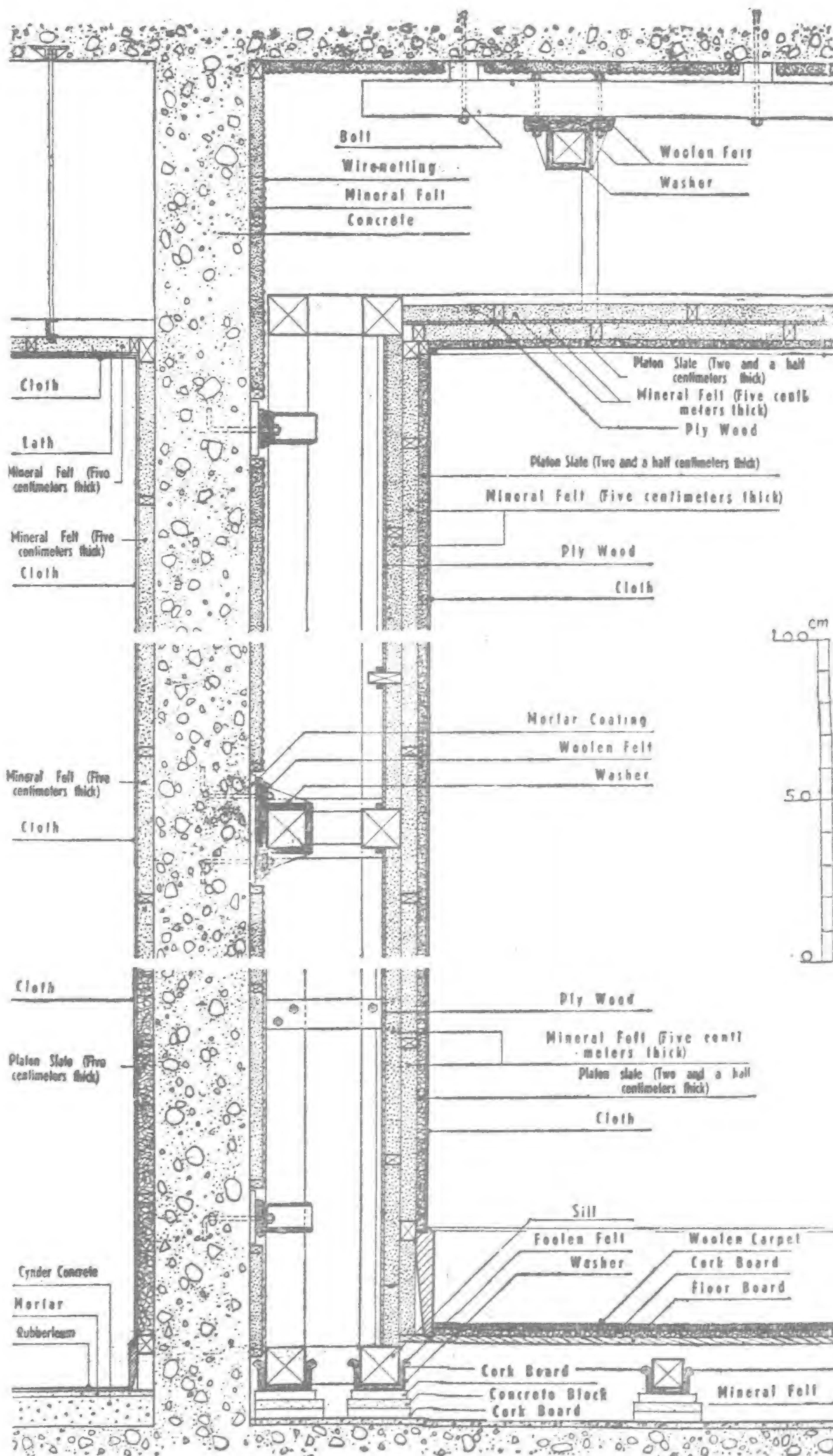
The building's 16,714.88 sq. meters of floor space is divided by floors as follows:

	Sq. meters
Basement ..	2,981.03
First Floor ..	3,003.41
Second Floor ..	2,305.36
Third Floor ..	2,731.31
Fourth Floor ..	2,095.57
Fifth Floor ..	2,003.81
Sixth Floor ..	1,191.62
First Penthouse Floor ..	299.69
Second Penthouse Floor ..	83.84
Third Penthouse Floor ..	19.24

In the basement there are 19 rooms, including those for air conditioning equipment, the generator, transformer, switchboard and time signal. The first floor also has 19 rooms, including those for press interviews, photographic files, some offices and the fourth, fifth, sixth and seventh studios. On the second floor there are 28 rooms, including the eighth, ninth, tenth, eleventh, twelfth, thirteenth and fourteenth studios, the last being only for phonographic music broadcasts. The third floor has 21 rooms, including those for the central control apparatus, rehearsals, recording and the Grand and the Second studios. On the fourth floor there are 24 rooms, including the library, observation balconies for the Grand and Second studios, the imitation sound research quarters and offices. The entire fifth floor is given over to offices and the first and second dining halls. The sixth floor has half a dozen rooms devoted to various purposes. In the penthouse, with its four rooms, part of the broadcasting equipment is housed.

The following JOAK broadcasts have recently become regular daily programs:

(a) Early Morning News, giving reports on the war situation in China.



Cross section sketch of the soundproof structure in Tokyo completed late in December, 1938, for the Broadcasting Corporation of Japan

(b) News Explanation, providing listeners-in with the news background so as to convey a better understanding of current events.

(c) To-day's News, which is a resume of the day's news reports intended for farmers who are not free to listen in during the day, and also for the benefit of Japanese residents abroad.

In a second group, the broadcasts listed below are given regularly to guide public opinion toward a better knowledge of current developments:

(a) The Government's Time, during which a direct appeal is made to the people.

(b) The Current Topic Reader, who explains how the people should cope with wartime circumstances.

(c) Special Time, which has been devoted to shop apprentices since passing of the Shop Law on October 1, 1938.

JOAK Studios—Their Areas and Uses

Name	Area	For Broadcasting of
Grand Studio	365.5 sq. meters	Orchestral, choral and concert music ; radio dramas.
2nd	111.8 "	Japanese and foreign music ; radio dramas.
3rd	71.0 "	Japanese and foreign music.
4th	94.9 "	Japanese and foreign music.
5th	64.4 "	Foreign music and overseas programs.
6th	65.8 "	Foreign music and overseas programs.
7th	36.9 "	Japanese music— <i>biwa</i> and <i>koto-samisen-shakuhachi</i> music ; <i>kouta</i> songs and story telling.
8th	58.6 "	Lectures.
9th	35.8 "	Special lectures.
10th	23.3 "	Lectures.
11th	20.8 "	Lectures.
12th	13.3 "	Market quotations.
13th	11.6 "	Daily news.
14th	10.9 "	Phonographic music.
Imitation Sound		
Research Room	20.1 "	Imitation sounds.

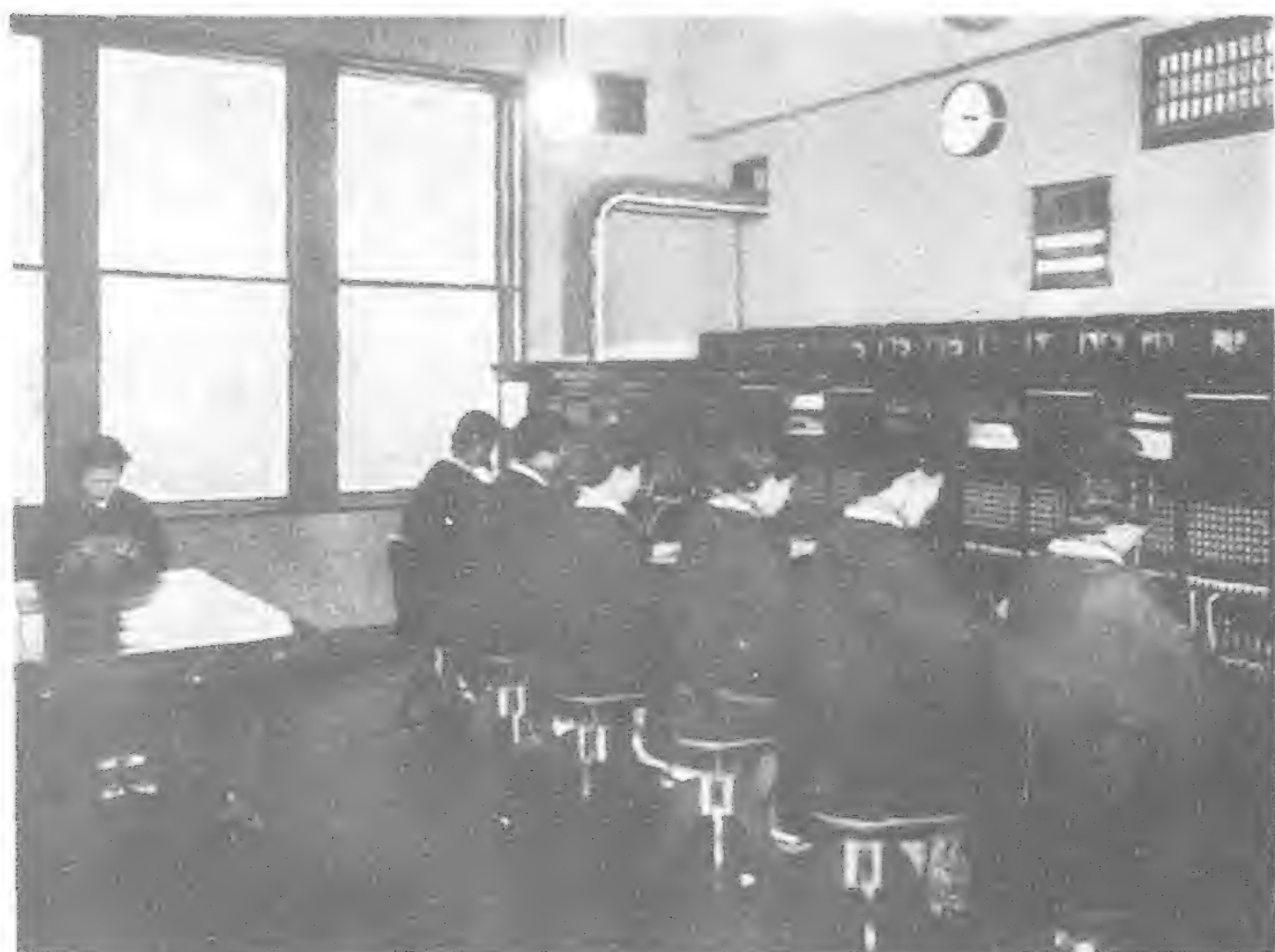
Prefecture	Total	Per 100 house-hold
Nara ..	36,177	29.2
Wakayama	35,517	19.2
Shiga ..	27,826	18.4
Tokushima	22,019	15.1
Kagawa ..	29,721	19.5
Okayama .	58,073	20.6
Tottori ..	16,926	17.8
Aichi ..	224,063	39.3
Miye ..	42,937	17.9
Gifu ..	53,157	21.7
Fukui ..	25,427	19.1
Ishikawa .	31,357	19.8
Toyama ..	36,199	23.4
Hiroshima	84,965	22.4
Yehime ..	31,953	13.1
Yamaguchi	58,696	22.6
Shimane ..	25,455	16.1
Kochi ..	21,192	13.6
Kumamoto	58,672	22.4
Fukuoka..	162,297	30.4
Nagasaki .	39,953	15.8
Saga ..	22,415	17.6
Oita ..	27,627	14.1
Miyazaki..	20,075	12.7
Kagoshima	32,566	9.8
Okinawa..	1,021	0.8
Miyagi ..	47,431	23.7
Fukushima	33,950	12.5
Iwate ..	18,757	10.7
Yamagata.	24,388	13.2
Akita ..	21,185	12.1
Aomori ..	18,349	11.3
Hokkaido .	108,963	20.0
Karafuto .	7,860	19.6

A compilation by prefectures of the number of radio set owners and subscribers to the 35 Japanese broadcasting stations as derived from the latest figures, available early in 1939, is given below:

Prefecture	Total	Per 100 house-hold	Prefecture	Total	Per 100 house-hold
Tokyo ..	924,628	72.1	Yamanashi .	25,498	20.5
Kanagawa ..	176,650	49.3	Shizukoa ..	105,724	30.4
Saitama ..	66,527	24.0	Niigata ..	75,456	21.2
Chiba ..	70,948	24.1	Nagano ..	53,354	16.0
Ibaraki ..	40,221	14.0	Osaka ..	464,241	51.7
Tochigi ..	43,333	20.3	Hyogo ..	232,419	38.0
Gumma ..	50,276	22.3	Kyoto ..	146,419	41.5

programs are broadcast by short wave from the JOAK studios every day in the week. Sent out on six transmissions in eight different languages, they are directed to five world zones, as follows:

- (1) Europe.
- (2) South American Countries.
- (3) The Eastern Districts of North America (two transmissions daily).
- (4) The Pacific Coast of North America and Hawaii.
- (5) China and the South Seas, French Indo-China, British Malaya, India and the Netherlands East-Indies (dual transmission with partly different programs according to language used).



Answering a flood of incoming and outgoing telephone calls. Six operators are kept busy continually at the JOAK switchboard



As the marble decorated fourth floor foyer appears upon alighting from one of the main elevators

Schedule for Broadcasts

Transmission I: For Europe (in English, French, German and Japanese daily):

19.30—21.00 GMT (previous day) or 4.30—6.00 a.m., Tokyo Time.

Transmission II: For South American countries (in Japanese daily, and in Spanish: Mondays, Wednesdays and Fridays, and in Portuguese: Sundays, Tuesdays and Thursdays—American date):

5.30—6.30 p.m. Argentine Standard Time (previous day),
6.30—7.30 p.m., Brazil Standard Time (previous day).



This large lounge No. 1, located on the first floor, is for the exclusive use of radio artists



Finished in semi-native style, lounge No. 2, on the first floor, is provided for Japanese artists who broadcast from Studio No. 7



Lounge No. 3, on the second floor, is also fitted with comfortable furniture for JOAK broadcasters



General reception hall on the third floor to which many visitors to JOAK building are ushered



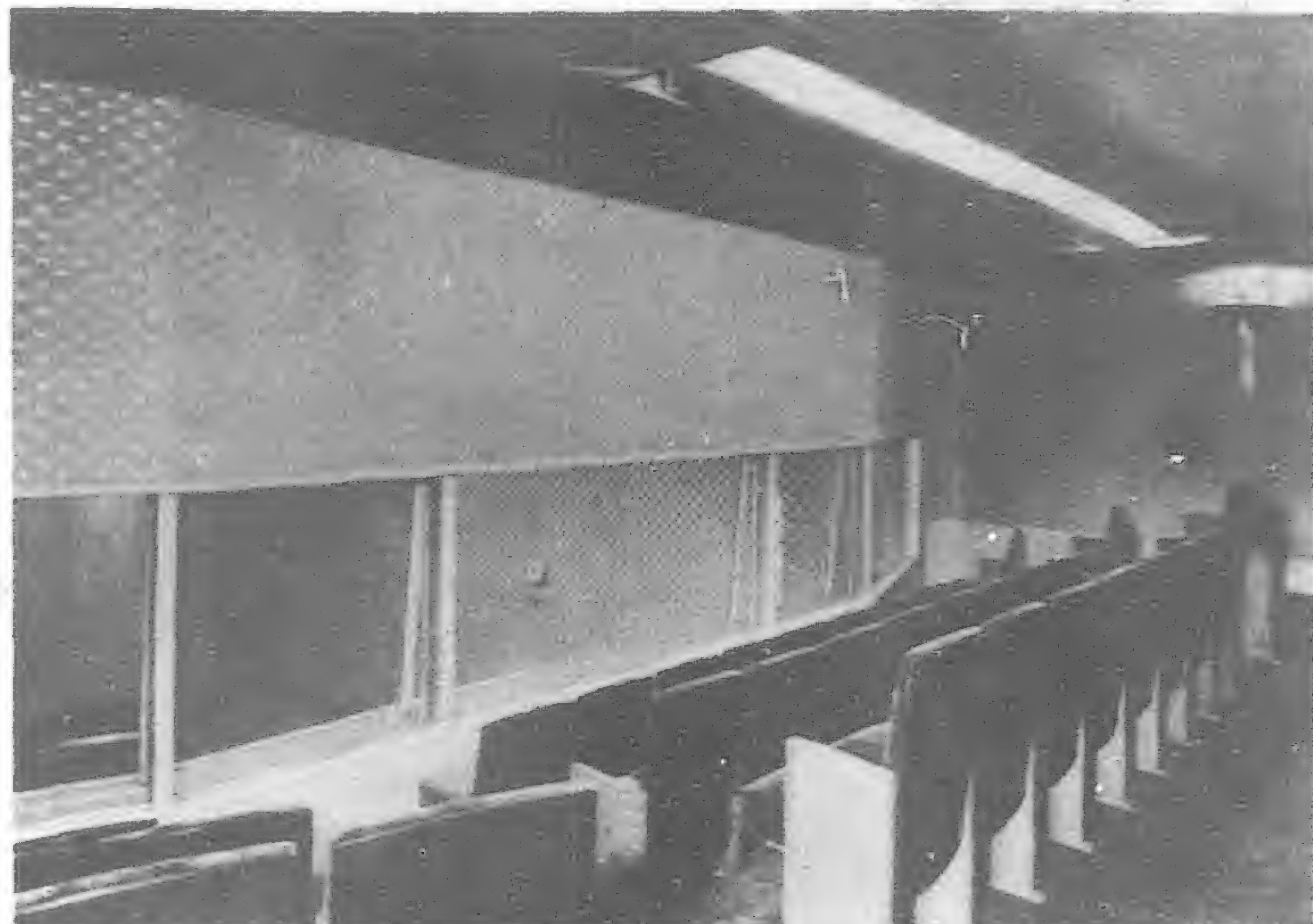
Special lounge on the fourth floor designed for the personal use of Prince Fumimaro Konoe, distinguished patron of Japan's radio center and recent Premier of the Empire



Conference hall where subjects pertaining to radio broadcasting technique and policy are discussed by officials of the establishment, on fourth floor



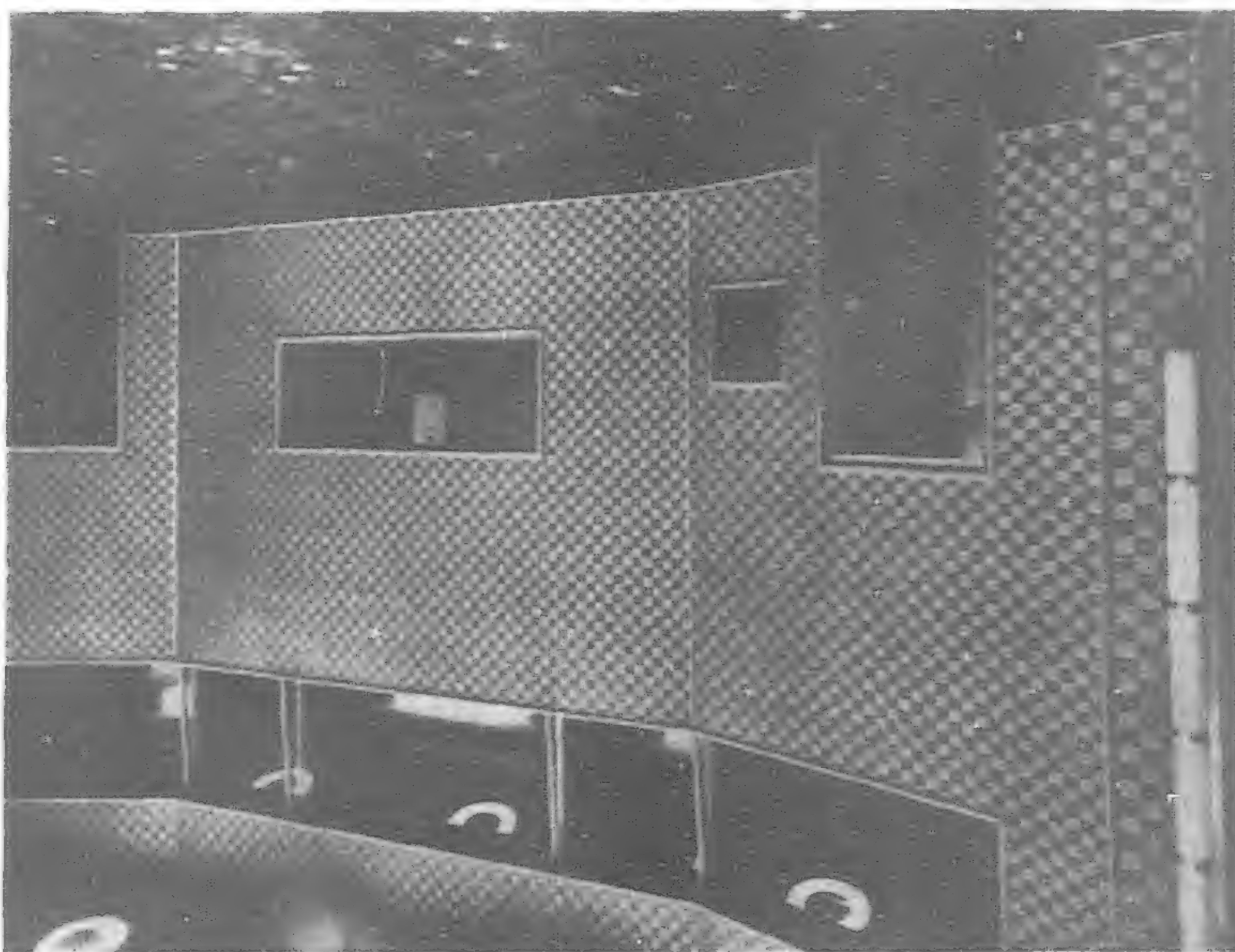
Lower end of the 365.5 sq.m. grand studio, extending between the third and fifth floor levels, looking toward windows of the sub-control room. Announcer's box and the 98-seat observation balcony, all of which are fitted with triple plates of glass for soundproofing



This audience room, with seats for 48 observers, overlooks Studio No. 2 on the third floor. Conditioned air enters through two supply ducts in the ceiling



Under the expert leadership of Michio Miyagi, who is sightless, a *koto* (native 13-string instrument comparable to the harp) orchestral program recently was broadcast from Studio No. 2 on the third floor. Such programs are relayed to 35 stations throughout Japan



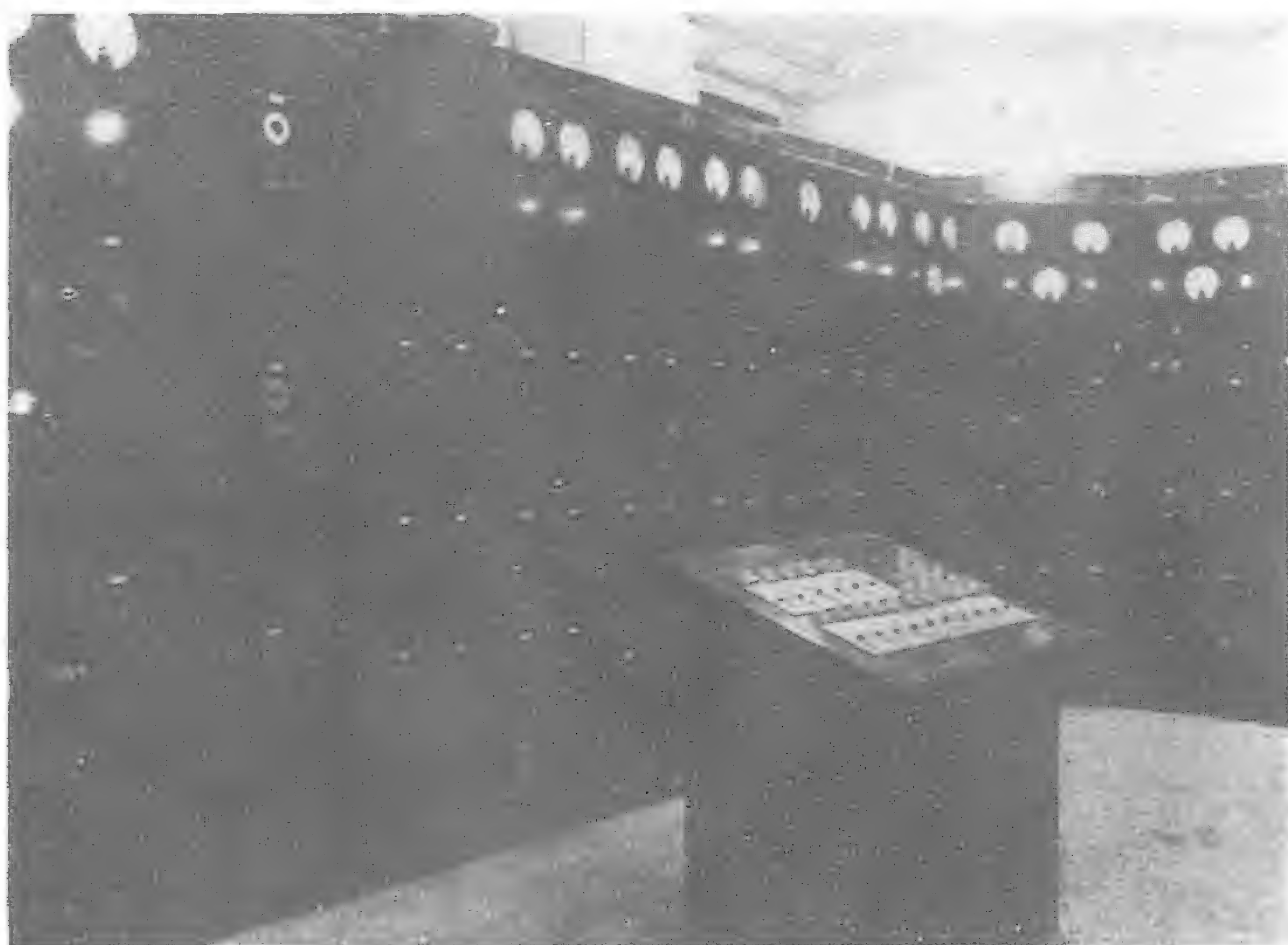
Rear of the 71 sq.m. Studio No. 3, on the third floor, showing windows of the 48-seat audience room, announcer's box and sub-control room



The 20.8 sq.m. Studio No. 11, on the second floor, is reserved for broadcasting lecture programs



The 58.6 sq.m. Studio No. 8, on the second floor, from which a variety of lecture programs is broadcast



One corner of the electric power room, in basement, showing a series of indicating gauges and the switchboard apparatus controlling power distribution throughout the building



Rows of library shelves, on second floor, where some 10,000 phonograph records are filed in a heat and moisture proof atmosphere

21.30—22.30 GMT (previous day) or 6.30—7.30 a.m., Tokyo Time.

Transmission III: For the Eastern Districts of North America, No. 1 (in English and Japanese daily):

8.00—8.30 p.m., Eastern Standard Time (previous day).

1.00—1.30 GMT or 10.00—10.30 a.m., Tokyo Time.

Transmission IV: For the Pacific Coast of North America and Hawaii (in English and Japanese daily):

9.30—10.30 p.m., Pacific Standard Time (previous day).

7.00—8.00 p.m., Hawaii Time (previous day).

5.30—6.30 GMT or 2.30—3.30 p.m., Tokyo Time.

Transmission V: For the Eastern districts of North America, No. 2 (in English and Japanese daily):

7.00—7.30 a.m., Eastern Standard Time.

12.00—12.30 GMT or 9.00—9.30 p.m., Tokyo Time.

Transmission VI: For China and the South Seas (in English on both frequencies, French on the second frequency, Dutch on the first frequency, Chinese and Japanese on both, daily):

9.00—10.30 p.m. (Peking, Shanghai, Hongkong, Manila).

8.20—9.50 p.m. (Singapore).

8.00—9.30 p.m. (French Indo-China, Siam).

6.30—8.00 p.m., India Standard Time (Bombay, Colombo).

11.00 p.m.—0.30 a.m., East Australia Standard Time (same day to next day) (Sydney, Melbourne).

13.00—14.30 GMT or 10.00—11.30 p.m., Tokyo Time.

The aerial output of power for the above short-wave broadcasts is 50 kilowatts. Transmissions to every part of the world have their individual directional aeriols. Each broadcast is opened and closed by the JOAK station identification chime signal, which is common to all the frequencies used in the overseas programs from Japan, followed by opening announcements in each of the eight languages.

JOAK's short-wave daily news reports are broadcast to:

Europe—in English, French, German and Japanese.

South America—in Spanish and Portuguese (every other day) and Japanese (daily).

North America—in English and Japanese.

China and the South Seas—in English, French, Dutch, Chinese and Japanese.

News in each language continues for about ten minutes, with the periods fixed definitely at a certain time in each transmission.

Schedule for Short Wave News Reports

ENGLISH:

- (1) For Europe—19.35 GMT.
- (2) For the East of North America—8.15 p.m., EST. 1.15 GMT.
- (3) For the West of North America—9.35 p.m., PST. 7.05 p.m., Hawaii. (0.35 a.m., EST). 5.35 GMT.
- (4) For China and the South Seas—8.45 p.m., Singapore. (5.25 a.m., PST). (8.25 a.m., EST). 13.25 GMT.

35 Japanese Radio Stations use Total of 395.3 Kilowatts

Tokyo Central Broadcasting Station (JOAK); Kilocycle 1 opened in May, 1928; Kilocycle 2 in April, 1931. Under its control are the following local stations: Nagano (JONK), March, 1931; Shizuoka (JOPK), March, 1931; Niigata (JOQK), November, 1931; Hamamatsu (JODG), July, 1933; Kofu (JOKG), December, 1937, and Matsumoto (JOSG), December, 1938.

Osaka Central Broadcasting Station (JOBK); Cycle 1 in December, 1926; Cycle 2 in June, 1933. Under its control are: Okayama (JOKK), February, 1931; Kyoto (JOOK), June, 1932; Tokushima (JOXK), July, 1933, and Tottori (JOLG), December, 1936.

Nagoya Central Broadcasting Station (JOCK); Cycle 1 in July, 1925; Cycle 2 in June, 1933. Under its control are: Kanazawa (JOJK), April, 1930; Fukui (JOFG), July, 1933, and Toyama (JOIG), December, 1935.

Hiroshima Central Broadcasting Station (JOFK), July, 1928. Under its control are: Matsue (JOTK), March, 1932, and Kochi (JORK), March, 1932.

Kumamoto Central Broadcasting Station (JOGK), June, 1928. Under its control are: Fukuoka (JOLK), December, 1930; Kokura (JOSK), December, 1931; Nagasaki (JOAG), September, 1933; Kagoshima (JOHG), October, 1935, and Miyazaki (JOMG), April, 1933.

Sendai Central Broadcasting Station (JOHK), June, 1928. Under its control are: Akita (JOUK), February, 1932; Yamagata (JOJG), November, 1936; Hirosaki (JORG), February, 1938, and Morioka (JOQG), August, 1938.

Sapporo Central Broadcasting Station (JOIK), June, 1928. Under its control are: Hakodate (JOVK), February, 1932; Asahigawa (JOCG), September, 1933; Obihiro (JOOG), November, 1936, and Kushiro (JOPG), February, 1938.

The Tokyo, Osaka and Nagoya radio stations each broadcast at two different kilocycles, ordinary entertainment by one and educational programs by the other.

SPANISH :

For South America (Mondays, Wednesdays and Fridays—American date)—5.35 p.m., Argentina, 4.35 p.m., EST, 21.35 GMT.



JOAK's transformer equipment for the supply of electric power in basement

PORTUGUESE :

For South America (Sundays, Tuesdays and Thursdays—American date)—6.35 p.m., Brazil, 4.35 p.m., EST, 21.35 GMT.



The boiler room with its necessary function to perform covers a considerable portion of the basement floor



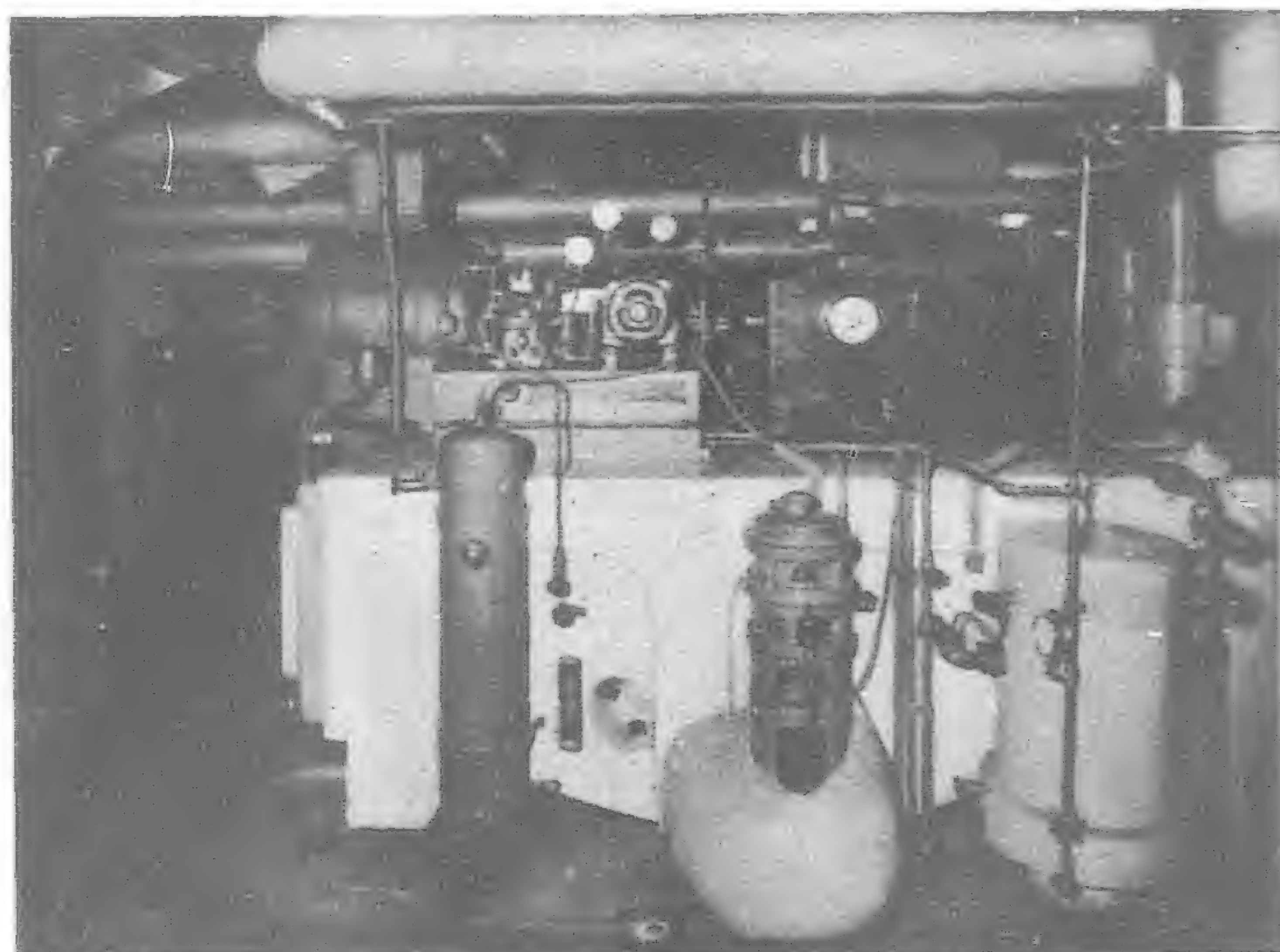
A diesel-engined electric power generating unit, capable of supplying adequate power within one minute, is installed in the basement should shortage or suspension of outside supply sources occur



Some of the elaborate conditioning apparatus in cooling and in heating air for Japan's radio center, where the same type of equipment is installed as that for JOBK at Osaka, the British broadcasting house, London, and other big stations



Part of the air cooling system, where cold water is sprayed into three sets of apparatus, like the above. Some outer air, cleansed by passage through and oil filter, mixes with a return portion from east of the 14 studios. The mixture is cooled and dehumidified before being taken into the studio supply ducts



Serving to cool water for the new JOAK building's air conditioning system, this carrier centrifugal refrigerating unit in basement, has a capacity of 150 tons of refrigeration. The same system heats and humidifies the air in winter



Interior of the sub-control room facing the grand studio, with small window to adjoining announcer's box in left side wall. The temperature of corresponding control rooms, as well as announcer's boxes and enclosed observation galleries, in JOAK's 14 studio units is automatically regulated by thermostats



Central control board and its intricate supplementary apparatus, on third floor, in JOAK's key room, where all radio programs coming from various studio sub-control rooms are received for amplification before being put on the air by Kawaguchi Transmission Station in a Tokyo suburb

FRENCH :

- (1) For Europe—20.35 GMT, 21.35 Temps de France, 3.35 p.m., EST.
- (2) For the South Seas (on the second frequency)—9.05 p.m., Saigon (9.05 a.m., EST), 14.05 GMT.

DUTCH :

For the South Seas (on the first frequency)—9.25 p.m., Singapore, 9.35 p.m., Java-tijd (9.05 a.m., EST), 14.05 GMT.

CHINESE :

For China and the South Seas—9.05 p.m., Singapore. (5.45 a.m., PST), (8.45 a.m., EST), 13.45 GMT.



Conductor Yamada putting members of the Tokyo New Symphony Orchestra through their paces in a recent broadcast from JOAK's spacious grand studio

GERMAN :

For Europe—20.05 MGT, 21.05 MEZ, 3.05 p.m., EST, 5.05 p.m., Brazil.

JAPANESE :

- (1) For Europe—20.45 GMT.
- (2) For South America—7.05 p.m., Brazil, 22.05 GMT.
- (3) For the West of North America—10.05 p.m., PST (1.05 a.m., EST), 6.05 GMT.
- (4) For the East of North America—7.05 a.m., EST, 12.05 GMT.
- (5) For China and the South Seas—8.25 p.m., Singapore, (5.05 a.m., PST), (8.05 a.m., EST), 13.05 GMT.



Kept immaculately clean, the JOAK kitchen, adjacent to the dining hall, is a busy spot during most of the 24 hours



Seating 400 the commodious, well-lighted dining hall on the fifth floor is open to the public, as well as for the convenience of members of the JOAK organization. A smaller dining room is on the same floor

Conditions in China's Occupied Regions

Vista of Immense Reconstruction Work is Being Opened

ON July 7, 1939, the Sino-Japanese Conflict entered the third year. In the past two years the Japanese Army, in close co-operation with the Navy, has occupied an area equal to one-third of the total area of China. Many important towns, centers of industry and trade and vital economic resources have been placed under control of Japanese troops. The work for consolidating these occupied districts is to be in full swing in the third year, and thus an era of construction for the ultimate goal of establishing the new order of the East Asia will be started. Of course, it is not to be expected that war operations will be ended in the near future, for since war has not been declared there can be no end of the hostilities by a truce or a peace treaty between the Japanese and the Chiang Kai-shek Government, but a *de facto* cessation of war will be gradually realized with the progress of the reconstruction work.

In the following are given brief accounts of present conditions in some of the important places in the occupied area.

Conditions in Hankow

Hankow is one of the most important centers for the distribution of goods exported to Central China and to the hinterland districts. The goods exported from the city are eggs and egg products, raw cotton, hemp, tea, iron ore, Tungsten bulbs, oils, etc., while those imported are copper manufactures, wrought iron, rice, sugar, tobacco, dyes, kerosene, gasoline, and sundry goods. In the first six months of 1937 Hankow imported goods worth yuan 20,709,000. In the corresponding months of the following year the imports were reduced to 1,750,759. The exports were yuan 4,278,000 in the first six months of 1937 and yuan 373,000 in the corresponding months of the following year. As to the goods exported they formerly were produced in the districts along the Han River and transported to Hankow where they were manufactured for export. In Hankow and the suburbs there were a number of factories for export goods. The greater portion of these, however, have been destroyed and the machinery and other equipment for production have been moved into the hinterland by the Kuomintang troops. This machinery and the implements of production of manufactured goods originally were imported from Europe and America and they have not been replaced. Agricultural products and other goods from the hinterland are not forthcoming in great quantity owing to the destruction of means of transportation, shortage of labor, unsatisfactory condition of the means of purchase and other causes. Hankow has now turned from a city of production to a city of consumption. Reconstruction is progressing with the ultimate object of restoring the former status of the city as an exporting center.

Needless to say, Hankow is within the area of war operations and for that account the Yangtze River is still closed, and general transactions of trade are not carried on. The goods transported to the city at present are confined to those necessary for the troops or for the pacification or relief of the inhabitants. These goods consist of sugar, tobacco, kerosene oil, tinned food, matches, candles, tools, small machinery, salt, wheat, fats and the like. The above goods imported into Hankow for four months ending on February

15, this year, amounted to yuan 4,300,000. The greater portion of the goods are imported from Japan and the prices of these goods are controlled by military authorities and they are generally lower than those in Shanghai owing to the fact that no customs tariffs are imposed upon them. Sugar and matches are cheaper than those in Shanghai by 20 per cent while those imported from Shanghai are higher in price by 30, 40 or even 60 per cent than those in Shanghai.

Goods which are forbidden clearance from Hankow are:—

- (1) Steel metals, copper, lead, antimony, zinc, brass manganese, iron ores, fluor-spar and machinery.
- (2) Coal.
- (3) Hemp, raw cotton, cocoons, wool, furs, leather and hides.
- (4) Alcohol.

Even other goods which are not included in the forbidden list cannot be exported without permission of the military authorities. In Hankow general trade transactions are not carried on at present.

The chief monetary organs in Hankow are The Yokohama Specie Bank, the Taiwan (Formosan) Bank, and the Hankow Bank. Many Chinese banks which had existed in the former British Concession before the hostilities are closed and about twenty-six temporary Chinese monetary establishments are engaging in business in the French Concession. As regards foreign banks the branches of The Hongkong and Shanghai Bank and other influential British and American banks are in the former British Concession,

but they have practically suspended business owing to the suspension of foreign trade. A few banks, including a Belgian bank, are conducting simple monetary transactions in the French Concession. Thus there is great inconvenience to the inhabitants. Money circulation in the occupied area in Hankow and its vicinity is confined to Japanese military notes. The Chinese Nationalist money is forbidden circulation, yet it is used among the Chinese in the French Concession and the suburbs.

The administration districts in Hankow consist of French Concession and the area under Japanese occupation including the former British, German, Russian Concessions and the Japanese Concession. The entrance to the Third Special District is closely guarded by the Japanese Naval Landing Party and the Army Police while the entrance to the French Concession is doubly guarded by the French authorities and the Japanese Naval Landing Party. The Chinese who pass the entrance to the French Concession are strictly searched by the Japanese authorities. In the refugee zone peace and order is maintained by the police of the Peace Maintenance Committee. Chinese who want to go to Wuchang across the river are requested to show certificates of residence. Japanese who possess passes are allowed to cross the river aboard the naval boats.

The Japanese Concession was literally demolished by the retreating Kuomintang troops and almost all buildings are more or less damaged and dilapidated. A large number of the Chinese residents took refuge in the French Concession when Hankow was occupied by the Japanese troops. At one time about one hundred thousand Chinese were residing in the Concession, but thanks to



China's Inland Metropolis on The Yangtze, the city of Hankow, was captured by the Japanese forces on November 27, 1938. With a normal population of about a million, it is the river and railway communication center of Inland China

the efforts of the Pacification Corps many Chinese have come back to the districts under Japanese occupation. At present there are about thirty thousand Chinese in the French Concession, while in the refugee zone, there are about two hundred thousand Chinese.

Electricity and drinking water in the Japanese districts are supplied by Hua Chung Waterworks, Electricity Co. under the control of the Army. Since January of this year hotels and other chief shops have been supplied with electric light, but electricity for motor power is not available. In view of the fact, however, that the power transmission lines are not much damaged, the current for motors will be supplied when there is much demand for it. The Hua Chung Company uses fire power for the generation of electricity and on that account the company is experiencing great difficulties in business owing to the insufficient supply and high price of coal.

Waterworks are undertaken by the same company, but in the French Concession water is supplied by the British Electric Power Company and the Waterworks Company in the Third Special districts. Owing to the increase in the Chinese population the supply of water is not sufficient, and the deficit is made good by the Japanese company or by water from the Yangtze River.

Wireless, and telegraph services between Hankow and Shanghai and other places were opened by the Hua Chung Telegraph Co. All mail matter is censored in Hankow. The City Telephone is not yet in service.

The residents in Hankow are suffering from lack of facilities for traffic. The Kiangnan Industrial Co. is planning to run fifty midget taxis in the city, but it will take some time before its realization.

The Yangtze River is still closed for general navigation and the voyage between Shanghai and Hankow is only undertaken by military boats once a day on average. Big junks near Hankow have been requisitioned by the Chinese government troops, so that transportation by Chinese junks cannot be restored for some time to come. Except military lighters, at present small motor-boats are only means of traffic between Hankow and the various ports along the river.

The wharves in all the open ports along the Yangtze River have been destroyed by the Kuomintang troops. Wharves of the Japanese Nissin Steamship Co., at Hankow, have been destroyed to such an extent that no trace of them is left. Ordinary commercial liners cannot be moored without any wharf. It will be understood that the opening of the Yangtze River is out of the question under present circumstances.

Before the hostilities Hankow had been the center of culture in the inland districts of China. Formerly there were published over ten dailies, including mosquito papers. There had been a number of first class book stores along the main street. All these organs of culture have disappeared since the hostilities. The *Woo Hang Pao*, Chinese daily, published by the Japanese Press Bureau is one organ for news. The paper has a daily circulation of seven thousand at present. In March, this year, another Chinese paper *Ta Tsu Pao* appeared as the organ of the Wu Han Government, which will be shortly born. The *Central China Post* is the only English language paper in Hankow.

The Situation in Nanking

Nanking made a marvellous development after 1927 when it was made the capital of the Kuomintang Government. The population which was only 360,000 in 1927 increased to 1,019,000 with 200,000 households immediately before the China Incident. Magnificent government institutions were established and almost all high officials resided in the Capital.

Nanking had thus existed as a political capital rather than as a commercial capital, and it has naturally been a great consuming

city with the consequence that no great industry developed there. This will be illustrated by the fact that in 1936 Nanking imported goods worth yuan 17,000,000 while exported only the sum of yuan 1,600,000. Since the hostilities more than half of the inhabitants have deserted the capital, but with the restoration of order many inhabitants came back and at present there is a population of about 600,000. As to the extent of destruction by the war operations only twenty per cent of residences and forty per cent of shops and stores have been destroyed while almost all official buildings have escaped destruction. The Japanese population has been increased from 154 to six thousand.

Nanking has no particular products. The products from the districts south of 350 kilometers from Nanking are sent to Nanking whence they are transported to Shanghai. The goods produced in the southern part of the Yangtze River are directly transported to Shanghai through creeks or by highways without passing through Nanking. The goods into Nanking are sent from Shanghai and only twenty or thirty per cent of these goods are distributed in the districts of Pengpu.

At present goods amounting to about three million yen are imported while only Y300,000 worth are exported as most of the goods are included in the list under embargo. It is, however, surmised that a big quantity of goods is secretly exported by Chinese and foreign traders. At present goods imported are tobacco, including foreign manufactured cigarettes, matches, sugar, tinned goods, soap, candles manufactured by the American Standard Oil Co., beer (Japanese, U.B. and Ewo.), kerosene oil, mosquito incense sticks, etc. A big quantity of rice is imported from Wuhu for the consumption of the Chinese inhabitants, while the Japanese settlers import Korean rice from Shanghai.

Goods from Nanking consist of corn, eggs, ox bones and seed oils. As to transportation of goods to and from Nanking, it is carried out by land and river traffic. This consists of railway and truck transportation. The railway transports more than 80 per cent of the goods and other transportation business is undertaken by the Nissin Steamship Co. with 17 steamers of an aggregate tonnage of 22,000 tons ply the Yangtze River.

The prices of commodities in Nanking have been greatly reduced since railway traffic was opened. For the importation of goods no restriction is imposed on Japanese traders while goods for export except goods under embargo may be shipped by both Japanese and Chinese traders with the permission of the Japanese Consulate, the Nanking Special Service Organ, and the wharf authorities.

All trade transactions are carried out in cash. Almost all traders in Shanghai have branches or agents in Nanking and are engaging in both wholesale and retail trade. For these transactions both Japanese and military notes are used. However, for the purchase of goods for export Nationalist money only is used.

There is no doubt that a fair amount of goods produced in the vicinity of Nanking is being smuggled into Shanghai. These goods are transported from Nanking to Chinkiang either by junks through the Yangtze River or by land, and from Chinkiang the goods enter a creek along the Yangtze River and go down the creek to the lower part of Kiangsu where the goods are transhipped to foreign vessels. Although the smuggling is conducted by Chinese traders, doubtless there is foreign capital behind the operations.

Two kinds of money which are in circulation in Nanking are the Japanese military notes and the Chinese dollars. The yen notes are only brought by travellers. According to the estimate of banking circles five million yuan of Chinese money and three million yen of military notes are in circulation. A fair amount of these notes are deposited in Japanese banks so that the real amount of notes in circulation are estimated at four million yuan of Chinese



A corner in the French Concession in Hankow



Chungshan east road in Nanking, which cuts a diagonal course through the former capital to the Purple Hills outside the walls

money and a million and a half yen of military notes. Military notes are exclusively used by Japanese travellers while Chinese bank-notes are used in the Chinese town. Only those Chinese traders who have dealings with Japanese traders use military notes for the settlement of accounts. Military notes are, however, gradually finding their way into the China town. As a matter of fact, there is no place in Nanking where one cannot shop with military notes. Only those traders who want to purchase goods in the hinterland districts must use Chinese bank-notes, but they only have one alternative of bringing Chinese notes from Shanghai. In Nanking there are three Japanese banks including The Yokohama Specie Bank, the Shanghai and Hankow Banks. The Hua Hsin Bank has opened a branch recently. The Yokohama Specie Bank undertakes payments for the Army and the Reformed Government, while the Shanghai and Hankow Banks deal with deposits and loans for inhabitants. These banks do not accept deposits and remittances in Chinese money.

There is no Chinese monetary organ and in this respect the existence of the Hua Hsin Commercial Bank is highly regarded. The circulation of Chinese bank-notes gradually being reduced owing to the fact that the Chinese capitalist class or the middle and higher grades have not come back to Nanking. The circulation of the Hua Hsin bank-notes is very limited at present. It is, however, expected that the notes, which are convertible with the Nationalist dollar at par, will be gradually used for transactions in the hinterland districts.

It can hardly be said that Nanking has restored normalcy in view of the fact that almost all government institutions and buildings are being used by the army and the number of the soldiers stationed is two times greater than of the Japanese inhabitants. The Japanese population, however, is being expanded rapidly. At the end of April, this year, there were about six thousand Japanese settlers and there is every reason to expect that the population will be increased to ten thousand by the end of this year.

The Chinese population was about 650,000 at the end of April, which shows a decrease of only 350,000 as compared with the 1,000,000 before the hostilities. Immediately after the fall of Nanking there was established a refugee zone, but all the refugees in the zone have returned to their original homes and the zone has disappeared. For the revival of economics for the Chinese the Nanking Chamber of Commerce is taking up the task of collaborating with the Japanese military authorities.

The Nanking Chamber of Commerce is the center of Chinese economic activities. It was established in March, 1938. It undertakes the restoration of inner river navigation, transportation of goods, conversion of damaged paper notes. Lately it is also endeavoring to form various kinds of trade guilds.

Nanking is the center of communications to all parts of China. The Tientsin-Pukow, Shanghai-Nanking and Nanking-Ningpo line meet at Nanking. It also faces the Yangtze River. The river navigation is undertaken by the Nissin and the Inner River Navigation Co., while the land traffic is carried out by the Hua Chung Railway and the Hua Chung Municipal Bus Company.

The Japan Air Navigation Co. and the Tsong Hua Air Navigation Co. engage in air transportation.

Of the seventeen liners plying the river between Shanghai and Hankow, fourteen or fifteen liners transport passengers, most of whom utilize the liners from Nanking to Wuhu or Hankow. Those who want to go to Hankow must resort to these boats, as no railway is available to Hankow.

The Inner River Navigation Co. has two lines, that is, Nanking-Pukow line and Nanking-Yangchow line. For the former steamboats of thirty-ton class ply the river eleven times a day. About three or four hundred passengers are transported every day. Pukow is a terminus of the Tientsin-Pukow Railway line. The transportation of goods between Pukow and Nanking is carried out by the Inner Navigation Co. For the Nanking-Yangchow line a steamboat plys every other day. Passengers are almost exclusively Chinese who go from Yangchow to Nanking for the purchase of goods or for trade purposes.

Between Shanghai and Nanking five trains are daily run and between Nanking and Wuhu two trains are run. On the Tientsin and Pukow line one train for Tientsin and one for an intermediate stop is run every day. About fifteen hundred passengers, except soldiers, and those commissioned by the army enter and leave the Nanking station every day.

The Hua Hsin Municipal Bus Company carry on the bus service in the city. About twenty buses are used for the purpose and transport about forty-five hundred passengers a day.

A direct air service between Hankow and Nanking is conducted by the Japan Air Transportation Company. It also connects Shanghai and Nanking. The service between Hankow and Nanking is almost exclusively used for military purposes, only seven or eight seats being available for ordinary passengers.

The Chung Hua Air Navigation Co. was recently established for service connecting Nanking to Peking, Shanghai, Hankow and Fukuoka. The Peking-Shanghai line includes Tsinan, Suchow and Nanking. The Hankow-Fukuoka line touches at Kiukiang, Anking, Nanking and Shanghai. These lines have one service a day; the charge is Y145 between Peking and Shanghai and Y90 between Hankow and Fukuoka. About 20 passengers are daily carried by the two lines.

Taxes on Japanese residents are collected by the Japanese Residents' Corporation. They are divided into income and business taxes. The rates of income tax is one per cent of the monthly income. Taxes on Chinese residents, are collected by the Nanking City Government with the collaboration of the Nanking Chamber of Commerce.

The telephone service is undertaken by the same Hua Chung Electric Communication Co. At present there are one thousand and twenty subscribers, and about one hundred new subscribers are being added a month. The Telegraph Service is also carried on by the same company. The company sends eighteen hundred telegrams a month and they are being increased by 30 or 40 per cent monthly. Anking and Nanking are connected by wireless telegraph service.



Outside the Chunghua Gate at Nanking. This was the gate the Japanese forces captured to enter the city on December 12, 1937

Electricity is supplied by the Hua Chung Waterworks and Electricity Co. Electric current of 20,000 kilowatts is generated and supplied to thirty-five hundred households in Nanking and Hsiekwan.

Water is supplied by the same company to the amount of one million cubic meters per month to the twenty-five hundred household except the troops. Water is supplied without charge to the refugee zone. The Nanking Radio Office daily forecasts at a radius of ten kilometers from eleven a.m. till ten p.m. without charge. There is one primary school for the Japanese in which three hundred pupils are taught. For the education of the Chinese there are normal, middle and high girls schools and primary schools. All these schools are established by the Nanking City Government. There are also Mission schools for both boys and girls. The total number of students in all the schools is estimated at over ten thousand.

The construction of a wharf for navigation service at Nanking on the upper part of the Yangtze River is being planned. When this plan is realized a direct route between Japan and Nanking will be opened and the economic position of Nanking will be highly advanced.

The Ancient Capital of Soochow

Soochow is the largest city next to Shanghai and Nanking; it is situated about 80 miles from Shanghai. By the Hsiekwan Treaty between Japan and China of 1895 it was opened as a mart. The population before hostilities was about 350,000. According to the returns for 1934, Soochow imported from abroad goods worth yuan 2,619,000 consisting of coal, tea, raw cotton, cotton yarn, cigarettes, and sundries, the city exported a small quantity of cotton fabrics, cocoons, rice and wheat flour. In the internal trade the mart cleared in 1933 rice, cotton fabrics, wheat, beans, cocoons, candies, matches amounting to about yuan 3,160,000 and imported sugar, table-salt, paper, oils, tea, machinery, etc., amounting to yuan 1,780,000.

Soochow produces rice amounting to over two million koku (a koku is about five bushels) a year and wheat amounting to six hundred thousand koku. It also produces beans, vegetables, cocoons, eggs, pigs, fish and furs. There are also a number of factories for spinning, wheat flour, matches, paper, buttons, carpets, etc. Sericulture is flourishing. Soochow was not much affected by the hostilities and so its economic recovery has been more rapid than any other center. Among the towns in the delta zone districts Soochow has the greatest amount of trade with Shanghai. At present the population of Soochow is about three hundred thousand. The goods imported into the town from Shanghai consist of cigarettes, sugar, kerosene, gasoline, cotton cloth, tinned foods, marine products, sundry goods, fabrics, candles, etc., amounting to five or six million yen a month. All these goods are not only consumed in Soochow, but also distributed to local districts through the network of creeks. Except those forbidden for export, goods amounting to 7,000 tons a month are exported. They are rice, wheat, beans, vegetables, tin. About 80 per cent of these goods go to Shanghai, the remaining 20 per cent to Nanking.

There are over six hundred Japanese inhabitants in the whole of Soochow. There are over ten thousand Chinese shops, and a number of factories producing wheat flour, matches, bricks, buttons, fabric yarn, small boats.

There are 34 private Chinese elementary schools, 21 public elementary schools, one public middle school, two private middle schools and 78 private institutes. About 21,000 students are taught in all these schools.

Electric light is supplied by the Hua Chung Waterworks, Electricity Co. Telegraph and telephone services are conducted

by the Hua Chung Electric Communication Co. The telephone service has one thousand and thirty-three subscribers. Waterworks are not yet opened. The inhabitants use wells for drinking water. The river navigation between Shanghai and Soochow, Soochow and Wusih, and Soochow and Changchu is carried out by the Inner River Steamship Co. There are also over three thousand small boats sailing through many creeks around Soochow.

The chief traffic means in the city are rickshas and buses. Trucks are used for the transportation of goods. Soochow is easily reached from Shanghai in one and a half hours or three hours at the longest by the Shanghai-Nanking Railway. As to agriculture a great increase of crops is anticipated by applying modern farming methods.

Conditions in Hangchow

Hangchow is the largest town in Chekiang province. It was opened as a port in October, 1896, by the Hsiekwan Treaty of 1895. Before the hostilities the population was about 600,000. About one-third of all the products of the Chekiang province are brought to the town. Many leading financiers formerly lived in the town. According to the returns for 1934, the town imported from abroad sugar, kerosene, gasoline, machinery, sundry goods to the amount of yuan 2,170,000 and exported silk fabrics, bamboo wares, etc. In internal trade the town imported in 1933, goods consisting of rice, paper, sugar, oils, cotton cloth amounting to yuan 10,600,000 and exported tea, silk fabrics and vegetables amounting to yuan 14,600,000. Although Chekiang province is famous for the production of rice it hardly fulfils the demand for consumption of the inhabitants on account of the dense population and the deficit is made good by rice imported from Kiangsu and Anhwei provinces. Tea heads the list of products in the province amounting to Y4,000,000 worth a year and next come bamboos, sea products, vegetables. Silk fabrics industries are flourishing producing ten million yen worth a year, that is, one-third of the whole products of Chekiang province.

Like Soochow, Hangchow has not been much affected by the hostilities and economic recovery has been very rapid. At present the population within the walls is 300,000. Although the former prosperity is not yet restored the movement of goods has become brisk.

The goods imported into the town at present are rice, provisions, tinned goods, sundry goods, kerosene, salted marine products, tobacco, etc. Rice is imported from Soochow, Wusih, Wuhu and Kashing. Other goods are imported from Shanghai. After Hangchow was occupied by the Japanese army, military notes were put in circulation together with Japanese bank-notes and Chinese Nationalist notes. At present about four hundred thousand yen of military notes are circulated. The City Government advances small loans to Chinese traders for purpose of inducing them to come back and resume business.

There are 1,063 Japanese inhabitants except soldiers, etc. Chief Japanese factories are the Sanyu Spinning Factory, Hua Chung Silk Yarn Factory, Hua Chung Waterworks and Electric Co., and the Ta Chung Hua Match Factory. Electricity and waterworks are operated by the Hua Chung Waterworks Co. Telegraph and telephone services are supplied by the Hua Chung Electricity Communication Co. There are 270 subscribers of the telephone service of which 85 are Chinese.

The Port of Chinkiang

Chinkiang was opened as a mart in 1861 by the Tientsin Treaty between China and Britain. Before the Incident it had a population of about 170,000. In 1934 its foreign trade was imports yuan



One of the ancient capitals, the Venice of China, is the city of Soochow located at the confluence of the Grand Canal and Soochow River



The celebrated West Lake with the city of Hangchow in the background

4,500,000, but exports were quite insignificant. Principle goods imported were cotton cloth, cotton fabrics, sugar, kerosene, gasoline, paper machinery, while the goods exported were raw silk, eggs, beans, etc. In internal trade the City exported in 1933 wheat, wheat flour, silk yarn, raw cotton, marine products, sesame seeds, matches, silk-worm eggs amounting to yuan 3,540,000. Imported goods were salt, sundry goods, amounting to yuan 4,000,000.

The chief products of the districts surrounding Chinkiang are rice, wheat, beans, raw cotton, yarn, wheat flour, matches, iron utensils, silk yarn, silk cloth, glass, rattan works. The town was much affected by the hostilities, 40 per cent of the place having been demolished. Reconstruction work has been favorably progressing. The population is now about 140,000 and about 90 per cent of the farmers in the neighboring districts have come back and settled down. Commerce and industry of the town have greatly revived. Flour mills and match factories have already been opened.

The town being situated in the closed quarters along the Yangtze River, free trade is forbidden and only transactions of the goods for military purposes are allowed. Most of the goods imported are transported from Shanghai. The monthly amount of these imported goods is estimated at about Y400,000. Sugar heads the list of the imports and next come cotton yarns and cloth.

Goods that may be exported at present are wheat, wheat flour, eggs, pork and its products, cow bones, ox bones. These goods are chiefly transported to Shanghai except ox bones which are exported to Japan. When peace and order is restored in the districts of Yangchow, a large amount of goods will be transported to Chinkiang and the town will resume its former prosperity as an exporting center. There being no monetary organs, traders are obliged to settle accounts with cash or by barter. The Chinese dollar is chiefly used for cash.

There are about 250 Japanese residents in the town and there are about 6,000 Chinese shops, restaurants, tea-houses, etc.

Electricity, waterworks, telegraphic and telephone services have been restored. A steamer of the Nissin line chartered for military purposes visits the town once a day and a steamer of 500 tons of the Inner River Steamship Co. comes every five days. At present navigation between Shanghai and Chinkiang takes from two to four days. Chinkiang can be reached from Shanghai by railway in four hours.

Kiukiang on the Yangtze

Kiukiang is situated midway in the Yangtze River. It was opened as a mart in 1862 by the Tientsin Treaty between Britain and China. The town was made victim of the scorched earth policy of the Kuomintang Government, and it was reduced to a dead town when the Japanese army occupied it last Autumn. The work of revival is in full swing. The town imports at present cotton cloth, sugar, salt, kerosene, tinned food, tobacco, matches, candles, etc. As Chinese from the hinterland are forbidden to enter the town due to military necessities, goods for exports are not forthcoming.

The telegraphic service is operated by the Hua Chung Telegraphic, Electricity and Communication Co. Air mail will be shortly opened. Electricity is supplied to a portion of the town, but the greater number of the inhabitants are still using candles and oil lamps. The telephone service has not been restored. For drinking water people are using wells and water from the Yangtze River.

There is a refugee zone containing about 60,000 Chinese. Food and other necessities are supplied to them at reduced prices. Kiukiang being situated near Nanchang and other important towns, it is destined to be a great commercial center in the near future when the communications to the hinterland and the opposite bank are restored.

Conditions in Kashing

Kashing is not a mart in the proper sense of the word. It is situated at a junction of both railway and canals between Shanghai and Hangchow and between Hangchow and Soochow. Before the hostilities the population was about 110,000. At present about 90,000 Chinese live in the town under the protection of the Japanese troops. The town imports from Shanghai tobacco, sugar, oil, cotton cloth, cotton yarns, chemical fertilizer, paper, candles. Goods exported are rice, vegetables, bamboo shoots, beans, eggs, pigs, sheep, poultry. About 60 per cent of the goods are exported to Hangchow and the remaining 40 per cent are transported to Shanghai. There are about 21 kinds of goods which may not be exported.

Although the money in circulation consists of Chinese dollars and military notes the former is mainly used for the purchase of goods. The Japanese military authorities are giving great facilities to those who want to make purchases with military notes; for instance, Chinese traders who apply to the Japanese assigned store for the purchase of goods with military notes can obtain the goods at a reduced price of 10 per cent or 20 per cent.

Conditions in Wuhu

Wuhu is situated about 100 kilometers from Nanking. It was opened as a mart in April, 1877, by the Chefoo Treaty between Britain and China. It is the greatest center for goods of Anhwei province. In 1935 it exported goods worth yuan 2,450,000 and imported yuan 2,850,000. The imported goods consisted of cotton yarn, cotton cloth, kerosene, sundry goods, while the exported goods were rice, soya beans, tea, rape seeds, iron ores, coal, etc. Iron ores were exclusively exported to Japan. For internal trade it exported yuan 25,410,030 and imported yuan 16,454,000 in 1933. The former consisted of rice, wheat, soya beans, rape seeds, tea, raw cotton, potatoes, kaoliang, Indian corn, ox hides and the latter consisted of paper, hemp bags, food stuffs, sundry goods.

During the hostilities the commercial quarters of the town were reduced to ashes by the Kuomintang troops. Many factories were also demolished. Since the occupation of the town by the Japanese troops, the work of recovery has been proceeding



The famed Chientang-kiang and the Great Chientang River Bridge only completed recently, but wrecked as shown above by explosives placed by retreating Chinese troops



The main market center of Kiangsi province is Kiukiang on the Yangtze. The Nanchang-Kiukiang Railway, 70 miles long, serves as an artery for the products of the central portion of this province

satisfactorily and many Chinese have come back and now the total population is 170,000 which shows an increase of 20,000 as compared with the population before the hostilities.

As the Yangtze River is closed and the town is situated within the zone of war operations, free trade is forbidden, only transactions of goods for military purposes and for the pacification and relief of the inhabitants permitted. At present sugar, cotton yarn, cotton cloth, rayon, kerosene oil, gasoline, tobacco, candles, matches, foodstuffs, tinned goods and sundry goods are imported from Shanghai to the amount of Y1,000,000 a month.

Peace and order are perfectly maintained. Chinese traders have begun to make purchases from Japanese traders. Prices of commodities in the town are about 20 per cent higher than those in Shanghai.

When the River is swollen, which is from the end of May to the middle of September, navigation of the river by big steamboats is possible and a fair amount of goods are directly imported from Japan. The following goods are forbidden for export.

- (1) Copper, brass, lead, zinc, antimony, manganese, jewels, machinery.
- (2) Coal.
- (3) Hemp, raw cotton, cocoons, wool, hides, furs.
- (4) Alcohol.

Goods which are exported are rice, wheat, soya beans, Indian corn, rape seeds, pigs' jowls, pigs' hairs, duck feathers, eggs, iron ores, of which rice alone is worth Y24,000,000. All these goods come to Wuhu from inland districts where peace and order are well maintained and are sent to Shanghai.

There are about eight hundred Japanese residents in Wuhu and over 100 stores and shops. Electricity is being utilized and telephone service will have been installed by the time this is published. Water and Gas works have not yet been constructed.

* * *

Utilities in General

In the Japanese viewpoint facilities to provide electric power, communications and transportations have a very close connection with the attainment of the new order of East Asia. The following brief outline indicates the extent of progress made in these fields.

At present the only means of transportation in Hongkew is the Hua Chung City Bus Co. The company has a capital of Y3,000,000 and operates 126 buses with 300 employees. It transports from 35 thousand to 40 thousand passengers a day. The company also runs 20 buses in Nanking, 19 buses in Hangchow, 12 buses in

Soochow and four buses in Chinkiang. The traffic lines in Shanghai are as follows:—

- (1) City line—Shanghai Shrine-Garden Bridge.
- (2) Yangtszepoo line—Garden Bridge-Yangtszepoo.
- (3) Pingliang Road line—Hongkew Market-Kanegafuci Spinning Co.
- (4) Seward Road line—North Szechuen Road-Fong Hua Spinning Co.
- (5) Shanghai Shrine—Woosung—Shanghai Shrine-Iida Wharf, Shanghai Shrine-Kiangwan, North Station-Garden Bridge, North Szechuen Road-Chingpu.

The Hua Chung Railway Company is a Japanese-Chinese concern with a capital of Y15,000,000. It is entrusted by the Reformed Government with the management of the railway lines in Central China. At present, the company transports 10,406 passengers a day and 6,000 tons of goods. From these figures the number of soldiers and tonnage of goods for military purposes are excluded. The railway has a mileage of 800 miles, and the employees consist of 2,000 Japanese and 2,000 Chinese. The chief lines are as follows:—

Shanghai-Nanking line, Shanghai-Woosung line, Shanghai-Hangchow line, Soochow-Kashing line, Nanking-Ningkan line.

Electric Communication Business

With the establishment of the Hua Chung Telegraph Co. the telegraph business in China has been entrusted to this company. The telegraph line between Nanking and Shanghai was restored in October last year by the company. The telegraph office in Nanking is now equipped with wireless apparatus. At present there are 37 telegraph and telephone offices in Shanghai, Nanking, Soochow, Hangchow, Chinkiang, Wusih, etc. In March, this year, the company forwarded 150,000 telegrams including 8,100 cables.

Subscribers to the telephone service numbered 3,600 in March this year and they are being increased by two or three hundred every month. The telephone service between Shanghai and Nanking was opened last January.

Telephone calls between Nanking and Soochow number 130 a month, according to returns made in March, this year.

Electric Power Generation Work

The capacity for supplying electric power in Shanghai is 10,000 kilowatt generated at the Chapei Power Station under the Hua Chung Waterworks, Electricity Co. The Chapei Station can generate thirty-four thousand kilowatts, but ten thousand kilowatts is sufficient for the present demand in Shanghai. Power stations in Central China are in Soochow, Suchow, Chinkiang, Nanking, Kiukiang, Hankow and Nanchang, etc.

Sumitomo Chemical Industry Company in Merger

A contract for financial co-operation between the Sumitomo Chemical Industry Company and the Tokuyama Soda Company was signed recently by the two concerns. Giving the Sumitomo organization a voice in management of the soda concern, it entailed the transfer of 50,000 of the 280,000 Tokuyama shares owned by the Iwai Shoten to Sumitomo interests.

Thirty thousand of the 50,000 shares transferred are owned now by the Sumitomo Chemical Industry Company, while the remaining 20,000 shares are divided between the Sumitomo Bank, the Sumitomo Trust Company and other Sumitomo concerns.

Strengthening of Tokuyama Soda's financial standing achieved through Sumitomo interests will enable the lesser organization to double its present capitalization of 20 million yen. Sumitomo Chemical Industry, through the new arrangement, can stabilize the supply of major raw materials, such as caustic soda, soda ash and chlorine produced by the soda concern. Future participation of the two companies on a joint basis in the alkali and ammonium industries is anticipated with fair certainty.

Mechanized Agriculture in Manchuria

THE history of mechanized agriculture in Manchuria covers a brief span of thirty-five years going back to 1904 and roughly is divided into three periods. The initial mechanical developments in farming grew out of the needs of the Russian army which required large quantities of hay for the Cossack Cavalry Divisions. To supply this need a number of foreign mowing machines were brought into the districts west of the Hsinganling Mountains. After the conclusion of the war in 1905 groups of Russian soldiers remained on the land and settled in various places along what was then the Chinese Eastern Railway, sold in recent times by Russia to Manchoukuo to become the North Manchuria Railway of the present day.

An individual who bore the name of Prikazchikov was one of the first to use mechanical equipment for farm work in Manchuria. In 1907 he leased about 125 acres of land near Yaomen Station on the present day Hsinking-Harbin Line. He made use of horse driven foreign ploughs and with the help of Chinese farm workers engaged in agricultural work for several years following Russian methods of farming. In spite of strenuous efforts that he put forth it seems that his Russian farming methods failed to attain results achieved under the ancient native Chinese system. This led him to abandon his foreign farming implements and adopt purely Chinese methods for a considerable period. He failed to attain any impressive measure of success and at length he decided to quit Yaomen. In 1922 he settled in the district of Sanho of to-day and promptly reverted to mechanized farming methods buying ploughs, drills, harvesters and mowers from the newly opened International Harvester Export Company's branch at Harbin.

A branch of this great American manufacturer of agricultural tools had been opened at Vladivostok and this led to further advances in the use of modern farm tools in Manchuria. The use of these tools contributed much to the development of farming in Siberia and in Manchuria and the demand for such tools grew rapidly.

In 1915 five tractors with accessories were sold by the International Harvester Export Company for use on the Santa Company's mechanized farm at Huma, in Heiho Province, of present day. This marked the first appearance of tractors in Manchuria and in 1916 two more tractors were sold to a Chinese agricultural company at Sanchienfan in Suipin-hsien of Sankiang Province of to-day. This village of Sanchienfan was situated on the River Heilungkiang. It has been held that the opening of this farm in such a remote frontier area implied a certain political significance. In this connection it is to be noted that towards the end of the nineteenth century various Russian groups became interested in gold mines along the right bank of the River Heilungkiang. It was estimated that the number of Russian gold miners in this area increased to about 10,000 in the districts of Moho, Huma and Aigun. When Russia was defeated by Japan all this territory that had been occupied by Russians was returned to China and this remote agricultural enterprise may have been a gesture by China to re-establish her territorial rights in these regions. Of various mechanized farms that of Sanchienfan ceased operations after several years while that of Huma was kept in operation up to the time of the Manchurian Incident in 1931.

Early Enterprises

As examples of the early advance of foreign agricultural implements in Manchuria may be recalled a foreign enterprise that bore the name of the Manchurian Development Company, and another mechanized farm at Suipin-hsien, which was managed by a Mr. William Morgan Palmer.

In 1911 a hunting party consisting of Mr. North, a Briton, Mr. Henderson, a Scot, and Mr. L. S. Palen, an American, were sailing down the Sungari when they were surprised and impressed by vast stretches of fertile Manchurian plains that spread from the river as far as the eye could reach without sign of a single human habitation. They believed that large profits would result if this rich land could be brought under cultivation. As a result, this trio organized what was called the China Development Company. None of the three men had any experience or knowledge of agriculture. Mr. Palen, who was a Customs officer at Antung, appeared to be the leader of the group. The capital of the firm that the group organized was on joint account of British, American and Chinese

investors, and amounted in the first instance to Gold Roubles 20,000. The site chosen for the farm was on the Sungari River some 20 kilometers west of Fuchin.

The initial efforts of the group failed to achieve satisfactory results and an acute need for additional working capital arose. In this emergency Mr. Palen made a trip to America in 1915 and in seeking investors in this Manchurian enterprise he was notably successful, because he raised a capital of U.S. \$2,000,000 of which \$250,000 was fully paid up. With these new resources the Company bought first, two Case make steamer tractors which were transported from America to the farm at Suipin. These tractors were used in clearing the vast plain where not a single farm house had been erected at that time.

In those days no alien could own farm land in Manchuria. So this Anglo-American Company was obliged to acquire their land in the name of Chinese shareholders of the Company from whom they leased their holdings nominally. Legal technicalities took up a great portion of the time of the active spirits of the undertaking and they were unable, therefore, to give adequate attention to the proper working of their land, or to needs of the market for their products. They became engulfed in a variety of difficulties, the worst of which was a flood of the Sungari, and this was followed by an outbreak of plague among men and cattle. When the epidemic at length subsided Russian interests in the country had collapsed causing a suspension of traffic on the Sungari and consequent loss to the Company of means of transportation.

In the emergency that arose agricultural experts were employed and a certain amount of progress was made, but political conditions, both in Russia and China, were unsettled, and hordes of bandits that surrounded the Company's property increased in number year after year. These conditions at length compelled the withdrawal from the scene of the foreigners, who were obliged to leave the management of the farm in the hands of the Chinese. Two years later, in 1925, all rights in this farming enterprise were sold to Mr. William Morgan Palmer. At this time Mr. Palmer was an Inspector in the Changchun Office of the Chinese Government Salt Revenue Department. He was engaged later in American relief work for famine sufferers in North China. His object in acquiring the agricultural enterprise was to relieve white Russian refugees by making them settlers on the farm. To carry out this purpose he established a tenants' village, sank wells, built farm houses and brought the big farm back into operation. This was an American enterprise begun with the aim of establishing a model American farm in this wilderness on the Sungari. It was destined to fail, for in 1925 the farm was attacked by bandits, Mr. Palmer was killed and the place was swept clean of live-stock and costly equipment. In the proceedings following the Palmer murder, and in an effort to eradicate foreign activities General Wu Chun-sheng, Governor of Heilungkiang, bought up all rights that Mr. Palmer held in the farm and the enterprise was brought to an end. This American undertaking continued over a period of ten years.

Phases of Early Farming

To review some of the phases of this early mechanized farming in Manchuria a pertinent question is, why did Mr. Palen bring from America steam tractors that even then were old-fashioned because in 1913 tractors with internal combustion engines might have been had? The reason for this was that the factor of fuel was a major consideration. The steam tractors were more convenient and economical because they could be operated with wood fuel brought from a district west of Suipin. In fact, the carrying of the transportation of wood and water to the farm required much labor, and it was found that storage of wood fuel was made difficult by field fires often started by bandits and hostile Chinese. It was quickly discovered also that the operation of the tractors over the heavy soil of the farm was difficult. In rainy weather the tractors could not be operated at all. This situation was remedied in part with the purchase of a large 75 horse-power Holt tractor. This could be satisfactorily operated throughout the bad weather of the seeding season and greatly extended the scope of utilization of machinery. For other purposes for which the old tractor was too large, smaller tractors were needed.

In the matter of crops experience disclosed that native varieties gave the best results and an effort was made by the Company to grow California beans, but this proved to be disappointing, as California beans were unsuitable for the Manchurian market.

This enterprise employed labor under various systems and at first discovered that the contract labor system was simpler and at times rather profitable. Still the contract system did not work out well at all times because it was found that the workers were lax in the performance of their duties and trouble often developed between workers and contractors, usually over demands for wage increases. Those directing the enterprise came to the conclusion that the tenancy system was the most preferable of all as it was found to be the most simple and economical. This was true especially with those tenants able to afford to buy cattle and farming implements. These formed the best farm tenants. For tenants in general the Company provided service in the work of cultivating soil and in mechanical sowing of seeds. It is to be noted here that even before this Company began operations a Chinese agricultural organization set up in business in Mankow, west of Harbin. This Chinese concern imported two Fowler Steam tractors, but these were said to be old in type and inefficient.

One effect of the Russian Revolution in 1917 was to cause advances and improvements of foreign agricultural methods and use of foreign agricultural implements in Manchuria. In the period of 1918-1920 Cossack farmers in the district of Za-Baikal took refuge in the Sanho region bringing with them considerable livestock and foreign farming tools. Another change beneficial to Manchurian agriculture that grew out of the Revolution was the enforced removal from Vladivostok to Harbin of the branch of the International Harvester Export Company. Originally many of the refugees from communism in Russia believed that the Revolution would be quickly put down, and that their stay in Manchuria would be temporary, but as time passed their occupancy of the districts in which they had settled became permanent. Thus they have since organized a special unique Manchurian farming group with their own language, manners and customs, religion and farming methods.

Readers may be interested in the table given below, published in the Report of the South Manchuria Railway Company's North Manchuria Economic Research Bureau in Harbin regarding those Russian refugee emigrants into North Manchuria.

TABLE I

Location of Settlements	At the time of Settlement					At the time of Settlement Farming implements	Years in which farming was started
	Years	Number of house-hold	No. of Livestock per household				
			cattle	horses	sheep		
Kluchevaya ..	1919	10	10	3	—	Nil	1922
Dubovaya ..	1923	3	10	5	30	Plough	1925
Popirai ..	1920	8	30	10	10	Wooden plough of farmer's own making	1924
Karaganui ..	1918	3	8	3	un-known	Wood plough of farmer's own making	1924
Shchuchiya ..	1917	3	10	5	40	Nil	1926
Tuluntui ..	1920	8	30	10	20	Plough	1925
						Mower	1924
Dragotsenka ..	1917	3	40	4	40	Reaper	1924
Ust-kuli ..	1918	10	8	5	—	Mower	1922
Labzogor ..	1929	8	unknown			All kinds of farm im-plements	1930
Barjakon ..	1918	4	20	1	—	Nil	1921
						Mower	1921
Charotui ..	1928	20	25	5	—	Reaper	unknown
Labdarin ..	1918	1	15	7	10	Nil	1924
Narmakchi ..	1918	—	unknown			Unknown	1924
Pokrorva ..	1929	—	3	1	3	Nil	unknown
Ust-Urga ..	1920	9	69	5	—	Nil	1924
Verh-Urga ..	1920	—	unknown			Mower	1921
	1934	4					
Ust-Shurkovaya ..	1936	15	Nil			Nil	1935
Verh-Kuli ..	1919	15	20	7	1	Plough	1924

It is noteworthy that these people had with them so much livestock and in particular they possessed mowing machines. Both livestock and machines were indispensable to them, although seldom used by native farmers. Through the essential two or three years of preparatory work these emigrants endured all kinds of hardships, far beyond comparison with the troubles Japanese emigrant farmers of to-day are meeting.

The history of the advance of mechanized farming in Manchuria roughly may be divided into three periods, the first covers about

twenty years from 1904 to 1923. The second period extends from 1923 to the time of the Manchurian Incident 1931. Through the first few years of this second period Manchurian agriculture flourished remarkably, both in production and in trade. As a consequence, despite their high cost, foreign agricultural implements were in heavy demand. New agricultural implement concerns entered the field and opened branch offices, and the agricultural experimental station of the South Manchuria Railway Company established at Kungchuling required many tractors and diverse agricultural machinery in carrying forward investigations and study foreign agricultural methods which might be applied to Manchuria. These were the golden days of the defunct Chang regime when these rapacious rulers were compelling farmers to sell their products for more or less worthless local currency after which the overlords sold these products abroad for gold. The years of prosperity were followed by a serious slump and after the Manchurian Incident social and political conditions became more and more unsettled while excesses of bandits made a great part of the country unsafe for residence. In such circumstances agricultural enterprises operated by foreign methods were almost extinguished. The conditions of those times are shown graphically in the following tables. Table II shows the sales of agricultural machinery, not including tractors and farming tools imported into North Manchuria through Suifen-ho and Kuanchentzu. This table was published by the Chinese Eastern Railway.

TABLE II (In Kilo Tons)

Year	Via Suifen-ho	Via Kuanchentzu	Total	Year	Via Suifen-ho	Via Kuanchentzu	Total
1925 ..	1	361	362	1930 ..	108	702	810
1926 ..	44	850	894	1931 ..	49	175	224
1927 ..	143	1,057	1,200	1932 ..	—	162	162
1928 ..	422	1,148	1,570	1933 ..	—	147	—
1929 ..	237	1,074	1,311	1934 ..	—	158	—

Table III shows the number of tractors sold to various places in North Manchuria by the Harbin Agents:—

TABLE III

International Harvester Export Co.	Ischurin and Co., Ltd.	American Asiatic Underwriters	Kunst and Albers	Total	International Harvester Export Co.	Ischurin and Co., Ltd.	American Asiatic Underwriters	Kunst and Albers	Total
1922 ..	1	—	—	—	1931 ..	4	1	20	—
1923 ..	6	—	—	—	1932 ..	2	—	—	—
1924 ..	5	—	—	—	1933 ..	2	—	5	—
1925 ..	4	—	—	—	1934 ..	2	1	—	—
1926 ..	16	—	—	—	1935 ..	7	3	17	—
1927 ..	20	—	—	—	1936 ..	8	4	10	6
1928 ..	30	14	—	—	1937 ..	—	8	25	—
1929 ..	63	9	—	—					
1930 ..	47	10	—	—	Total ..	217	50	77	6

The effects of the world depression in 1929 were reflected in Manchurian agricultural life. It is said that the International Harvester Export Company suffered a loss of Y.1,060,000 in this region after the panic of 1929-30. According to records of the Chinese Eastern Railway agricultural experimental stations at Anta, Harbin, and Aiho that had been established by the Chinese Eastern were supplied with farming implements by this American Company as shown below:—

Tractors ..	11	Tractor Ploughs ..	13	Disc harrows ..	16
Reapers ..	4	Mowers ..	4	Rakes ..	11
Fodder Crushers ..	5	Motors ..	7	Drills ..	21
Threshers ..	18	Suppressors ..	2	Harrows ..	16
Trucks ..	2	Winnowers ..	11	Sowers ..	21

The farming implements of the South Manchuria Railway Company's agricultural experimental station at Kungchuling are as follows:—

Tractors ..	4	Tractor Ploughs ..	2	Hay rake ..	1
Disc harrows ..	3	Mower ..	1	Harrow ..	1
Thresher ..	1	Suppressor ..	1	Soyabean sower ..	1
Hay binder ..	1	Disc plough ..	1		

Experiences in Manchuria show that to the agricultural industry nothing is more harmful than a feeling of political uncertainty among the people, and activities of bandits. Owing to these two causes a large number of the farming implements listed in Tables above, of the value of several million Yen, are to-day abandoned and useless. When the farming implements the Chinese Eastern Railway had owned were handed over to the new State of Manchoukuo it was found that, besides natural wear and tear, lack of timely repairing had caused much damage. Of the three hundred

and fifty tractors transferred some one hundred and seventy-five, are about fifty per cent still are in service to-day in various places in Manchoukuo. Many of them are in service in the extensive highway building that is being carried forward.

In the third period of modernized farming in Manchuria extending from 1931 to the present time more actual progress perhaps was made than in the two preceding stages. The Japanese are playing a major rôle in developing Manchurian agriculture with the use of foreign style tools. As a detail of a "Five-year" agricultural plan that has been inaugurated, a number of experimental farms and other growing areas under direct or indirect supervision of Manchoukuo are being maintained. This has brought about a rapid increase in the use of foreign agricultural implements.

Although incomplete, the number of existing agricultural implements in use with the names of farms where they are used may be given as follows:—

FARMS IN OPERATION THROUGH PUBLIC BODIES IN MANCHOUKUO

Name	Place	Farming Area, acres	No. of Tractors	Other tools in use
National Koshan Experimental Farm	Koshan Lung-kiang Prov.	—	2 gasoline tractors	2 ploughs 1 harrows 1 drill 1 packer *1 pendrill (bendrill) 1 binder 2 cultivators *1 rotary 1 rake 1 thresher 3 nail harrows
National Harbin Experimental Farm	Harbin	—	1 gasoline catapillar	1 plough 2 harrows 1 disc 2 nail harrows 1 thresher
Solon Bannersmen Farm	Yakushi, North Hingan	3,185	9 gasoline tractors	8 ploughs 9 harrows 5 drills 10 binders 2 threshers
East Yarkunor Left Bannersmen Farm	Kandagaya, North Hingan	735	2 gasoline tractors	2 ploughs 2 harrows 2 drills 4 binders 1 thresher
Chenpachhu Bannersmen Farm	Assan, North Hingan	1,960	4 gasoline tractors	5 ploughs 4 harrows 2 drills 6 binders 1 thresher
Anta Prefectural Farm	Paohsingshouling, Taping-shan, Ping-kiang	—	2 gasoline tractors	2 ploughs 2 harrows 1 drill 2 binders 1 thresher
Hingya Farm	Anta, Pingkiang	1,470	2 gasoline tractors	2 ploughs 2 harrows 1 drill 2 binders 1 thresher

FARMS IN OPERATION BY MANCHURIAN FARMERS

Name	Place	Farming Area, acres	No. of Tractors	Other tools in use
Chin Yung-chi	Chingcheng, Pingkiang Prov.	—	1 gasoline tractor	1 plough 1 disc harrow
Yi Tai	Fuchin, Sankiang Prov.	4,410	2 gasoline tractors	2 ploughs 2 harrows 2 drills 1 thresher
Heng Teh-ching	Fuchin, Sankiang Prov.	—	1 gasoline tractor	2 threshers
Ta Yu-yu	Noho, Lung-kiang Prov.	1,764	3 gasoline tractors	3 ploughs 3 harrows 2 drills 1 thresher
Ta Hing-chuan	Noho, Lung-kiang Prov.	2,205	3 gasoline tractors	3 ploughs 2 harrows

FARMS IN OPERATION BY JAPANESE FIRMS IN MANCHURIA

Name	Place	Farming Area, acres	No. of Tractors	Other tools in use
Kungchuling Experimental Farm, South Manchuria Railway Co.	Kungchuling	19.6	2 gasoline and 1 Diesel tractors	many tools
Harbin Railway Directorate, Experimental Farm	Harbin	—	1 gasoline tractor	2 ploughs 2 harrows

Name	Place	Farming Area, acres	No. of Tractors	Other tools in use
Sato's Mechanized Farm	Fengwang-cheng	490	2 gasoline and 2 Diesel tractors	2 ploughs 2 harrows 2 drills 1 binder 2 threshers
Manchuria Development Corporation	Official Mass Immigrant	—	23 Diesel tractors 8 gasoline tractors	2 ploughs 1 disk harrow 1 reaper 1 drill 2 threshers
Kangte Farm	Yakushih	612.5	1 Diesel tractor	1 plough 1 harrow 1 drill 2 binders 1 thresher
Shuntien Farm	Iminhe, North Hingan Prov.	869.75	1 Diesel and 1 gasoline tractors	2 ploughs 2 harrows 1 drill 4 binders 1 thresher
Kolonbail Development Guild	Mientuho	906.5	7 gasoline tractors	6 ploughs 4 harrows 3 drills 3 binders 1 thresher
Hsiehho Farm	Yokonho North Hingan Prov.	857.5	1 gasoline tractor	1 plough 2 harrows 1 drill 2 binders 1 thresher
Iken Joint Farm	Upper-reaches of Ikenho, North Hingan Prov.	931	By pony	4 ploughs 4 harrows 1 drill 4 nail harrows 1 rake 1 thresher
Railway Directorate, South Manchuria Railway Co.	Various places	—	5 gasoline tractors	Available tools locally

INDIVIDUAL FARMS OF MECHANIZED OPERATION, OTHER THAN ABOVE MENTIONED

Name	Place	Area acres	No. of Tractors	Other tools
Kyuichi Furuya	Chingkiang-hsien Ping-kiang Prov.	—	1 gasoline tractor	3 ploughs 2 harrows 1 drill 1 rake
Oronzoff	Yakushih	122.5	3 gasoline tractors	3 ploughs 3 harrows 2 drills 4 binders 1 thresher
North Manchuria Noho District Development Co.	—	—	5 gasoline tractors	
Total number of tractors and tools in use				
			69 gasoline tractors	60 ploughs
			28 Diesel tractors	57 harrows
				29 drills
				41 binders
				23 threshers

There are some more Manchurian and Russian farms in far interior parts of Manchuria, but they are unknown.

FARMING TOOLS BELONGING TO RUSSIAN VILLAGES IN SANHO DISTRICT (In 1931)

Villages	Tractors	Ploughs	Harrows	Drills	Mowers	Reapers	Threshers	Binders
Dragotsenka	3	66	1	6	30	6	4	30
Kluchevaya	—	53	—	3	22	3	1	19
Verh-Kuli	1	99	—	2	64	5	5	61
Ust-Kuli	—	26	—	—	18	1	2	17
Verh-Urga	—	64	1	4	22	3	5	21
Ust-Urga	—	23	—	1	11	2	—	10
Dubovaya	1	59	4	3	19	4	8	15
Tuluntui	—	34	—	—	14	1	3	12
Labdarin	—	21	—	—	11	—	1	12
Popirai	—	33	—	—	17	1	1	19
Charotui	—	17	—	—	13	1	1	15
Barjakon	—	15	1	1	5	3	2	6
Karaganui	—	10	—	—	6	1	—	6
Pokrovka	—	24	7	—	3	1	—	8
Sv. Kolui	—	8	—	—	6	—	—	5
Labzogor	—	5	—	—	3	—	—	3
Narmakchi	—	6	—	—	5	—	—	4
Ust-Shurhovaya	—	—	—	—	—	—	—	—
Shehuchiya	—	11	—	—	7	—	1	7
Total	5	574	14	20	276	32	34	207

(To be continued next month)

Singapore Civil Wireless Station

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(The Journal of The Engineering Association of Malaya)

THE Singapore Civil Radio Station is one of the links in the chain of radio stations operated in Malaya by the Posts and Telegraphs Department, S.S. and F.M.S.

The object of this paper is to trace the development of the Singapore Station from its inception in 1914 to the present day. It will be seen from the later paragraphs that the station has developed from a very meagre beginning until the present day when it is one of the most important stations in the Malayan chain.

The paper will deal with the transmitting station situated at Paya Lebar, as it is considered that this is the most interesting section of the work.

Historical Note

The Station first was erected in 1914 and commenced operation in November of that year.

It was designed to carry on satisfactory communication with ships at sea up to a distance of 400 geographical miles at all times except when atmospheric disturbance rendered communication impossible.

The equipment at that time was housed in one building in which both transmitting and receiving were carried out. This building also contained the equipment for supplying power to the transmitter.

Communication was carried out by means of the telegraphic morse code.

The transmitter consisted of one Marconi 5 kw. Synchronous Spark Discharger Set giving a signal with a musical note of 600 periods per second. The spark gap was mounted on an extension of an alternator shaft and consisted of an insulated disc of approximately 10-in. in diameter fitted near its periphery with a metal rim in which are fixed a number of copper studs one inch in length. The number of the studs had a direct numerical relation to the number of poles in the alternator and rotated between stationary adjustable copper electrodes. The spark took place between the revolving and fixed electrodes so that a spark frequency of 600 per second occurred when the alternator was running at normal speed and in correct phase relation to the alternator.

The alternator was direct coupled to a D.C. motor and at normal speed delivered 5 kva at 500-volts 300-cycles. The D.C. power for driving this motor alternator was obtained from an accumulator battery of 60 cells of 90 amperes maximum discharge rate. The battery was charged from a high speed vertical type Gardner Oil Engine developing 20 h.p. at approximately 800 r.p.m. direct coupled to a continuous current generator giving an output of 10 kw. at 110-160-volts when driven at 800 r.p.m.

The motor-alternator could be driven direct from the oil engine generator when necessary.

High tension supply for the spark discharger was obtained from the 500-volt single phase A.C. supply. This was stepped-up by means of a single phase closed iron circuit core type transformer contained in a galvanized iron case filled with high flash insulating oil for cooling purposes. The transformer secondary delivered 5 kva at either 7,000 or 14,000-volts when supplied at 500-volts 300-cycles. Suitable air core protecting chokes were inserted in the leads from the transformer to the high frequency circuit to protect the windings from damage by high frequency surges.

The high frequency circuit comprised a closed oscillatory circuit coupled by means of the "Transmitting Jigger" to the Open Oscillatory or Radiating Circuit.

The Closed Circuit consisted of a condenser, a variable inductance and the primary of the oscillation transformer or "Jigger." It was called a "Jigger" as it was used for the transformation of trains of oscillations or "Jigs" as they were styled from one circuit to another.

The condenser consisted of a bank of eight units contained in self-insulating glazed ironstone containers. Each unit consisted

of sheets of zinc with glass plates as the dielectric. The container was filled with insulating oil. This bank of condensers was fitted with a set of bus-bar connectors and insulating separators known as a Swiss Commutator in order that the capacity could be varied in accordance with the frequency requirements of the high frequency circuit.

The Transmitting Jigger consisted of independent primary and secondary circuits enclosed in separate teak cases. The coupling between the two circuits was varied by sliding the case containing the secondary circuit laterally with respect to the primary.

The Open Oscillatory or Radiating Circuit comprised the Jigger secondary and the aerial tuning inductance both of which could be varied by means of taps on the coils brought out to insulated terminals.

The Aerial was of the multiple "T" type suspended between the existing tubular steel masts.

The Earth System comprised a number of galvanized iron-plates arranged on edge and completely buried in the ground in two semi-circles symmetrically placed on either side of the building and directly under the aerial.

Two separate receivers were supplied and comprised one receiver of the magnetic detector pattern working in conjunction with a Marconi Multiple Tuner which covered a wavelength range of 100 to 2,500 meters.

The magnetic detector consisted of a stranded soft iron band moving at a uniform rate in the magnetic field produced by two permanent magnets. This band passed through a glass tube carrying a primary winding directly coupled to the aerial circuit through the tuner. A secondary winding connected to the head-gear telephones was placed over the center of the primary. The moving band actually consisted of a number of strands of fine gauge silk covered soft iron wire loosely twisted together. This passed as an endless band round two ebonite pulleys, one driven by clockwork the other running free. The clockwork mechanism was designed when fully wound up to drive the band for 1½ hours.

The other receiver was of the Marconi balanced crystal type having a range of adjustment for the reception of all wavelengths between 300 and 2,500 meters.

The first additions to the plant were made in 1921 when the transmitting and power plant were duplicated thus increasing the reliability of the station against breakdown. Also, at this time the receiving equipment was brought up to date by the installation of a more modern receiver equipped with thermionic valves. The development of the thermionic valve had received an impetus during the Great War and soon after the cessation of hostilities this development made available valve apparatus for commercial purposes. Then the crystal and magnetic detector were replaced by the more efficient form of thermionic valve detector and the addition of valve amplifiers improved the overall sensitivity of the receiving plant. To-day it is hard to imagine any other form of receiving equipment. The use of the valve for transmitting purposes has also developed so that it has replaced the spark and arc systems of transmission. To-day only the smallest of medium wave transmitters use the spark system.

From time to time, additional services have been added to the simple Coast Station service for which the Station was first designed and to-day the following services are carried out:—Ship to Shore, Fixed Station, Aeronautical and Aircraft, the collection of weather reports, the broadcasting of synoptic weather reports and direction finding.

With the increase of services it became necessary to separate the transmitting and receiving stations in order to allow of the simultaneous operation of several transmitters and receivers. To allow of this, the transmitters have been retained at Paya Lebar and a Receiving Station has been constructed at Toa Payoh, about four miles distant from the Transmitting Station. On the latter

site a Direction Finding Station also has been constructed for giving bearings to Aircraft.

A Receiving Station has also been installed at the Civil Airport for the reception of aircraft and aeronautical messages and weather reports from adjacent countries.

Transmitting Station

At the present time the Transmitting Station comprises one main building in which is contained the power switchboard, the high frequency apparatus and its associated power plant. A second building contains the Workshop and emergency power plant.

The building is the original station which has been added to and altered from time to time and in consequence does not present the finished appearance which it would have done had it been designed to accommodate the present plant.

The generator room is provided with a small dehydrating plant for the purpose of reducing the humidity in the room. The doors and windows of this room are made as airtight as possible and the dehydrator is run during the night only. By this means, much of the trouble experienced previously with breakdowns in the armatures of high tension machines has been obviated and it is a rare occurrence these days for an armature to develop a fault through insulation trouble.

The object of the past years has been to dispense with batteries for the supply of power to the transmitters and to obtain the supply direct from the alternating current mains. A battery and its charging plant is still retained at this Station for an emergency machine for the ship to shore transmitter.

The A.C. supply is obtained from the Municipal Electric Department by means of an underground cable. This supplies power at 400-volts 50-cycles three phase for power purposes and 230-volts 50-cycles single phase for lighting.

A diesel electric plant is installed to provide power in the event of failure of the main power supply. This plant consists of a five cylinder vertical cold starting crude oil engine capable of developing 88 b.h.p. direct coupled by means of a flexible coupling to a three-phase alternator rated at 70 kva 400-volts 50-cycles.

Owing to the fluctuating nature of the load the engine is fitted with an extra heavy flywheel and the alternator with a voltage regulator to provide a constant voltage output within plus or minus three per cent at all loads.

The engine is of the four cycle type whilst the alternator is excited by means of an overhung exciter shunt regulated.

A small petrol driven air compressor provides compressed air for starting.

The plant runs on diesel oil fuel and can be brought into operation within four minutes of the failure of the main supply.

Power from the main and emergency supply is controlled from a switchboard situated in the transmitter room.

Transmitters

Six transmitters are in use and are installed in the Transmitter Room. Four of these operate in the short wave band, whilst the other two are used for medium wavelengths of 600 and 900 meters respectively.

The services covered by these transmitters are:—

- Transmitter No. 1=Ship to shore short wave
- „ No. 2=Ship to shore medium wave
- „ No. 3=Aircraft and Fixed Station
- „ No. 4=Aeronautical and Aircraft
- „ No. 5=Aeronautical and Aircraft
- „ No. 6=Fixed Station

Transmitters Nos. 1 and 3

Transmitters Nos. 1 and 3 are identical and consist of a "push-pull" oscillator driving a push-pull magnifier stage.

The transmitter consists of two units—the transmitter unit and the power supply unit. Access to the valves is facilitated by hinged mesh gates on both sides of the transmitter unit. Safety gate switches are provided on these gates to remove all H.T. voltages when the gates are open.

The oscillator is continuously variable from 15 to 100 meters (20,000 to 3,000 kilocycles), covering the wave-band in six ranges.

The magnifier push-pull stage covers the wave-band in a similar number of stages.

Triodes are used in both oscillator and magnifier stages and neutralization is therefore required in the magnifier stage.

These transmitters are supplied entirely from the alternating current mains and the direct current high tension supply for the anodes of the valves is obtained from high vacuum rectifier tubes.

Suitable relays are provided for the remote control operation of valve supplies and for keying purposes.

These transmitters are arranged for continuous wave telegraph operation but facilities are provided for the addition of telephony should this facility be required at a later date.

Facilities are provided on each transmitter for setting the wavelength on two pre-selected spot waves. This provides a rapid change of wavelength when required.

The aerial circuit is inductively coupled to the final stage anode inductance. The degree of coupling is adjustable and the two halves of the aerial coupling coil may be used in series or parallel.

The supply unit is designed to work from a 400-volt three-phase four line 50-cycle supply and contains an H.T. rectifier of the high vacuum type, with smoothing circuits, transformers for the filament supplies, switching contactors and fuses, together with the keying circuit.

The rectifier is of the full wave type and utilizes four diodes, two connected in parallel on each side of the circuit. A separate filament transformer for the filament supply to these valves is provided.

The H.T. supply is switched on the primary side of the H.T. transformer via a contactor controlled by a small relay which is controlled from the local control table. The H.T. transformer is fused on the primary side by suitable fuses.

The supply for the filaments of the valves of the transmitter is obtained from a transformer with two secondary windings, one for the filaments of the oscillator valves and one for the filaments of the magnifier valves. This transformer is switched on the primary side together with the filament transformer of the rectifier by means of a contactor controlled directly by a switch on the local control unit through a small relay.

The Local Control Unit is mounted on the control table in the Transmitter Room and embodies all the necessary controls for providing the following facilities:—

- Remote/Local switch, filaments ON/OFF switch,
- H.T. ON/OFF switch, manipulating key sockets,
- Telephone switch and microphone socket.

Transmitter No. 2

Transmitter No. 2 is a medium wave transmitter operating on 500 and 425.5 kc/s. The transmitter is arranged for interrupted continuous wave telegraph working only.

Three triode valves are arranged in parallel in a self-oscillatory circuit. Filament and anode supplies are obtained from a 500-volt 300-cycle single phase supply by means of suitable transformers. The H.T. supply for the anodes of the Oscillator valves is obtained from two half wave vacuum rectifiers arranged in a full-wave circuit. A smoothing circuit is not incorporated so that a direct current supply of 10,000-volts with a ripple voltage of 600-cycles/second is obtained.

Low frequency inductors in the filament circuits of oscillator and rectifier valves provide control of the filament supplies and a low frequency inductor in the primary of the H.T. transformer provides control of the high tension anode supply.

Keying is accomplished by interrupting the primary circuit of the H.T. transformer.

A relay operated from the Receiving Station provides operation on either 500 or 425.5 kc/s.

Power for this transmitter is obtained from a motor generator set giving a single phase output at 500-volts 300-cycles. The main motor generator is supplied from the Municipal Mains at 400-volts 50-cycles whilst the emergency D.C. machine is supplied from a 120-volt 360 ampere hour battery.

Transmitter No. 4

The short wave transmitter No. 4 provides facilities for transmitting continuous wave telegraphy, modulated continuous wave telegraphy and telephony.

The transmitter is of the crystal master oscillator type, the carrier being generated at low power and amplified to the level required for application to the aerial system. In order to secure a high factor of safety, a large crystal is used, operating at two or three times the desired wavelength. This gives an additional feature of having two crystal controlled frequencies on each crystal. The stability is better than .02 per cent.

The oscillator consists of a quartz crystal which controls a valve oscillator. Provision is made for any number of crystals up to six so that actually the transmitter may be crystal controlled on anyone of twelve spot waves. The required crystal is selected by means of a switch operated from the front panel.

The output from this stage is coupled to a valve which is normally used as an amplifier. This valve can also be used as an auto oscillator in a case of crystal failure or when it is required to generate a frequency other than those available by the crystal oscillator. Easy change from crystal to valve is made by means of a switch.

This stage is followed by one or two stages of frequency multiplication, depending on the frequency used, and then by the final power amplifier stage. In this stage four valves are connected in a balanced push-pull circuit.

The equipment covers a wavelength range of 15 to 120 meters. All wavelength changing is effected by means of switches and dials controlled from the front of the transmitter.

For telephony and modulated continuous wave telegraphy a modulator is provided giving about 60 per cent modulation.

The modulator unit consists of a tone oscillator, speech amplifier and modulator valves. For economy in power consumption a switch is provided in order that the unit may be switched off when not required during periods of transmission on C.W. telegraphy.

The tone oscillator consists of a single valve and a choice of tones from this oscillator can be selected by means of a switch controlling a bank of condensers.

Speech or tone is applied to two valves connected in a push-pull circuit and the output from these amplified in a further stage consisting of two valves in push-pull. This stage is used to modulate the anodes of the radio frequency power amplifier valves.

A control unit is provided and allows switching of the filament, grid bias and high tension supplies. A three position switch on this unit also provides for selecting the type of service required, whether C.W. M.C.W. or telephony.

Lamps are provided for indicating when the filament and high tension supplies are on.

Two systems of signal keying are provided on this transmitter. The normal system gives a high degree of frequency stability during keying. The break in system allows the operator to listen-in when the key is not depressed and he can thus be stopped at will by the station receiving his transmission.

For the normal system, keying is effected by changing the screen grid voltage of the first frequency multiplier stage. By this means the master oscillator and the coupling stage are left working continuously and frequency "shift" is avoided.

For the "break in" system keying is effected in the coupling stage between the master oscillator and the first frequency multiplier stage, in addition to keying the latter stage. This method makes it possible for the transmitting operator to listen in on a receiver whilst signalling since when using the crystal stage as an oscillator no radio frequency is transmitted although the crystal oscillator is generating, it is operating at a low power and at a different frequency from the output stage.

Keying relays are located in the oscillator amplifier unit and the method used is that of altering the bias on the screen grid of a tetrode valve.

The power equipment consists of a motor generator operated from the 400-volt 50-cycle three-phase supply. Duplicate motor generator sets are supplied.

The motor generator set comprises a motor direct coupled on one bedplate to two D.C. generators. Generator No. 1 gives an output of 1,500-volts. The field of this generator is separately excited from the 150-volt commutator of generator No. 2 which has a double wound armature with two commutators giving 150-volts and 16-volts. Generator No. 2 is compound wound, the shunt field of which is excited from the 150-volt commutator and the series field is in the 16-volt circuit. These fields are so arranged that the low tension output is level compounded at 16-volts from no load to full load.

A power control unit contains all the apparatus necessary for regulating and controlling the supplies to the transmitter and includes voltmeter, fuses, high tension contactor, high tension overloading relay and field regulators.

Transmitter No. 5

The largest of the transmitters is No. 5. It provides facilities for transmitting on continuous wave or modulated continuous wave telegraphy, and telephony on any wavelength between 550 and 3,500 meters.

The transmitter comprises three units. The first contains the voice frequency and the master oscillator equipment, the second contains the radio frequency power amplifier and modulating valves whilst the third contains the antenna coupling equipment.

A master oscillator is employed for stabilizing the output frequency. The radio frequency output of this oscillator is then applied to the grid of a power amplifier valve, the output from which is applied to the antennae system. The power amplifier valve in this case is a water-cooled valve.

Modulation is carried out by means of a second water-cooled valve similar to the radio frequency power amplifier. The modulator is arranged so as to vary the anode potential of the power amplifier at voice frequency.

A two stage speech amplifier is used for raising the speech currents from the microphone to a level suitable for application to the grid of the modulator valve.

For tone modulated telegraphy a tone oscillator valve is coupled to the grid of the first speech amplifier valve. The frequency of this oscillator can be varied as required over a range of 600 to 1,000-cycles per second.

When the transmitter is used for continuous wave or tone modulated telegraphy, the radio frequency feed to the power amplifier is interrupted by a relay which is controlled by the telegraph key.

The water cooling system required for cooling the anodes of the Power Amplifier Radio Frequency and Modulator Valves is of the closed circuit type wherein a pump is made continuously to circulate water through a system comprising the water jackets of the valves, an expansion tank and an air blast cooler. The pump is capable of delivering ten gallons of water per minute against a head of 100 feet. The water is led to a jacket surrounding the anode of each valve through a length of rubber hose which forms a column of water of sufficiently high resistance to render the D.C. leakage current negligible. The heated water from the valves is cooled by means of an air blast radiator type cooler.

A water flow alarm is fitted and should the rate of flow of the cooling water fall below normal, the contacts of the alarm open and as this alarm is inter-connected with relays in the field circuits of the high tension and filament supply generators these supplies to the transmitter are interrupted.

Power for operating the transmitter is derived from two five unit motor generator sets one of which is used as a standby set.

These motor generators are operated from the 400-volt 50-cycle A.C. supply mains and comprise a motor coupled to a 24-volt generator, a 300-volt generator, a 1,600-volt generator and a 3,400-volt generator.

The A.C. Mains are connected to an oil immersed isolating switch and three automatic starters for controlling the motors of the motor generator set, the water pump and the air blast cooler. The motor starters are equipped with the usual overload and no-volt releases.

To ensure that the various voltages are applied to the valves in the correct order the generators are excited progressively, that is to say, the 24-volt generator for filament supply excites the 300-volt generator for grid bias, and this in turn excites the high tension generators.

The voltages of the generators can be controlled from the transmitter panel.

A dial type thermometer indicating the temperature of the cooling water is fitted with adjustable contacts which can be set to any predetermined temperature. These operate a relay and cause a bell to ring in the event of the temperature rising above 60°C.

Gate switches are fitted to the gates of each unit in the transmitter so that no high tension voltage can be applied while the gate of any unit is open.

As a precaution against applying the filament or anode supplies to the water-cooled valves before the water system is in satisfactory operation, an interlocked system is used between the water pump and machines supplying the valves.

A start/stop control on the transmitter panel has been arranged to operate starters for both pump and cooler motors. The pump motor starter is provided with a mechanically operated auxiliary contact having a delay of 15 seconds which is utilized for operating the main motor generator starter. By this means, it is impossible to omit starting the pump and cooler motors as these have to be in operation for 15 seconds before any potentials can be applied to the transmitter.

Antennae System

The Antennae are supported on two tubular masts and one lattice tower erected at the corners of a triangle.

The tubular masts are 230 feet high and are constructed of steel sections bolted together. Each section is ten feet in length.

The foundation for each mast consists of a concrete block 8-ft. 0-in. by 8-ft. 0-in. by 8-ft. 0-in. The foot of the mast is anchored to this block by means of eight 1½-in. iron bolts 6-ft. 0-in. in length.

Twelve stays are used to support each mast, the stays are arranged in four sets supporting the masts at 90-ft., 170-ft. and 230-ft. from their bases and they are anchored to blocks of concrete 8-ft. 0-in. by 8-ft. 0-in. by 7-ft. 0-in., arranged at the corners of a square 115-ft. 0-in. from the center of each mast. Each stay is broken into odd lengths by means of porcelain insulators to ensure that they are not tuned to wavelengths or harmonics transmitted from the main aerials and so cause loss of power by absorption of radiated energy.

The lattice tower is self-supporting and is constructed by a well-known firm of manufacturer. The members of the structure are open hearth rolled steel angles, bolt connected throughout. The tower is designed to withstand the specified loadings completely within itself and on its own foundations.

The entire surface of all the members including bolts and nuts and the inside of punched holes are heavily galvanized by the hot liquid zinc process.

The tower is 152-ft. in height 14-ft. 10-in. at the base and is designed for a loading, in addition to its deadweight, for a horizontal pull of 1,500 lb in the direction of the antenna, 100 lb at right angles thereto and a vertical load of 1,000 lb all applied at the top of the tower. In addition to which is applied a wind pressure equivalent to an indicated velocity of 110 m.p.h. uniformly distributed on one and one half times the normal projected area of the tower.

The antennae for transmitters Nos. 2 and 5 are suspended between the two tubular masts. Each antenna is of the inverted L type and consists of four wires of 7/22 S.W.G. phosphor bronze, separated six feet from each other. The spreaders at each end of the antennae are of hardwood 20 feet in length.

The short wave antennae are suspended from triatics slung between the tubular masts and the lattice tower. These will finally consist of horizontal dipoles slung between the northern mast and the lattice tower and four horizontal dipole between the southern mast and the lattice tower.

It will be realized that each dipole aerial is designed to work efficiently on one particular wavelength so that some means of connecting a transmitter to the aerial of the desired wavelength must be employed. A switching frame is at present being erected so that any one of the short wave transmitters can be switched to any dipole aerial.

The earth system consists of a number of galvanized iron plates 6-ft. 0-in. by 3-ft. 0-in. buried on edge on the circumference of a circle of 50-ft. radius around the center of the transmitting building. Copper wires are also buried at six feet intervals and extend lengthwise beneath the antenna system itself. Copper wires and galvanized iron plates are joined together and connection made to the transmitters.

Remote Control

All transmitters are started up and stopped locally at the transmitting station. Keying of the transmitters can be carried out at either the transmitting or receiving stations. Remote keying at the receiving Station is carried out over a buried cable

consisting of 13 pairs of 20 lb per mile copper conductor. This cable is protected by a lead sheath and steel and brass tape armoring.

The cable is terminated on links at the transmitting station to provide a flexible system. It will be seen that any transmitter can be keyed from any position in the Receiving Station, Direction Finding Station or Airport Receiving Station.

Japan Face a European Crossroad

(Continued from page 271)

common policy and interests. As to the formula of the treaty the question is:

- (a) Is the treaty to be operated against the U.S.S.R. alone?
- (b) Or is it to be a broad mutual assistance treaty to be even applied against a third power or powers in the occurrence of the eventuality foreseen in the treaty?

Mr. Honda sees no immediate necessity for entering into a new agreement if it is only directed against the U.S.S.R., as such is not so much the strengthening of the pact as the mere change of its outward form. Supposing a war broke out between the U.S.S.R. and the Axis powers, Japan's war operations cannot be confined to those against the U.S.S.R. but she will be obliged to fight also against Britain and France. Then the allied treaty only directed against the Soviet Russia is not thinkable. There is propounded a middle course that the treaty while confining its operations against the U.S.S.R., shall automatically be made effective against any third power who intervenes for Soviet Russia. But he thinks that this plan has this defect that in case either of the contracting powers is attacked by a power other than the Soviets the attacked member cannot obtain the assistance of the other contracting powers so long as the Soviets remain neutral.

Balance of Power

Mr. Honda then tries to elucidate the important rôle Japan can exercise in international affairs. The mere observance of neutrality on the part of Japan, he says, will be enough to increase the strength of the democratic powers who will harden their attitude towards Germany and Italy and renounce their compromising policy which might be the case should Japan join the alliance with the fascist powers, thus endangering peace in Europe through the loss of the balance of power.

In conclusion Mr. Honda proposes the formula of the new alliance treaty as follows: (a) the present anti-communist pact shall be preserved intact. (b) The three powers shall further conclude a mutual assistance treaty for safeguarding their common policies and their own special interests with a view to contributing towards the maintenance of peace of the whole world. When the above-mentioned policies and interests of the three contracting parties are threatened they shall enter into discussions as to the measure to be taken. In short he advocates a political treaty, and not a military agreement which he thinks shall be entrusted to military experts of the respective powers.

I have given undue space to the introduction of the opinion for the tripartite alliance between Japan and the fascist powers, but this does not necessarily mean that the opinion against the conclusion of such an alliance has subsided. Only it does not find a proper channel for its full expression. In the meantime it is reported that details of Japan's fundamental policy to deal with the new European situation were approved at a conference of the five Ministers comprising the "Inner Cabinet" on June 5. These details are not divulged so far, and are not known to outsiders.

As it is, the writer presumes that should the democracies, more especially Great Britain, not change their fundamental policy of rendering assistance to the Chungking Government, thus undermining Japan's objective of the hostilities, the opinion against the strengthening of the pact will gradually vanish and the possibility of her entering the Axis powers and concluding a military alliance will be so much increased. British authorities may deny as unfounded the allegation that she is giving such assistance, but such denial is far from convincing to the Japanese.

Babcock and Wilcox's Renfrew Foundries

(The Engineer)

A FEW days ago a party of engineers visited the foundries at Renfrew as the guests of Babcock & Wilcox, Ltd. The steel foundry is of especial interest, for although steel castings have been made at Renfrew for upwards of twenty years, it was only last year that a complete reconstruction of the steel foundry was completed. Needless to say, it is therefore as modern in all respects as may be. The building is in two bays, one 330-ft. long by 75-ft. wide, the other bay 175-ft. long by 35-ft. wide, and at the present time 110 men are employed.

Approximately 1,000 tons of carbon steel and 150 tons of special alloy steel finished castings are produced per annum. Steels conforming to all British Standard Specifications are handled as well as a number of alloy steels to cover the many special conditions to be found in steam-raising equipment, the principal of these alloy steels being a nickel-chromium alloy marked under the trade name of "Calmet."

The castings consist of valves, pipe-work, gear wheels, supporting members, and general engineering castings used in water-tube boilers, Babcock cranes, and Babcock equipment for pulverized fuel firing. The major part of the work has to satisfy outside specifications and tests, and test pressures up to 2,400 lb. per square inch are not uncommon.

General contracting business is also carried on in steel castings of all kinds for outside firms. Castings weighing from 15 cwt. to 20 cwt. are quite frequent, but heavier castings than this can be undertaken.

Electric Furnaces

All the melting is done in electric furnaces, three in number, all of the Heroult type, two being of Siemens-Schuckert design and manufacture, while the third was made by the Electric Furnace Company, Ltd. The first-mentioned furnaces each melt a three ton heat of steel in $2\frac{1}{2}$ hours, and the latter a 15 cwt. heat of alloy steel in two hours. All three are basic lined and have automatic electrode control. The charges consist of clean steel scrap of known composition from the forge and tube mill.

The ladles—bottom pouring—are fired with specially designed oil-burner plant, ensuring perfect dryness at high temperature for the reception of the molten steel.

Fitted with a slagging door, a water-jacketed door frame, and a reinforced pouring spout, the electrically welded sheet steel shell of the Siemens-Schuckert furnaces has a dished and well reinforced

bottom with tilting rockers. A strong and completely closed steel ring holds the furnace roof. At the side of the furnace shell is the electrode stand in which the electrode arms are guided.

As the arms are held by a strong compensating rope system and balanced by counterweights, only a small load has to be dealt with when raising and lowering them, and it is therefore possible to use light but robust driving units, consisting of D.C. flange motors with oil-immersed worm gear which ensures steady and smooth operation. These driving units are mounted on the electrode stand immediately above the furnace platform, and to reduce friction the arms are guided by rollers.

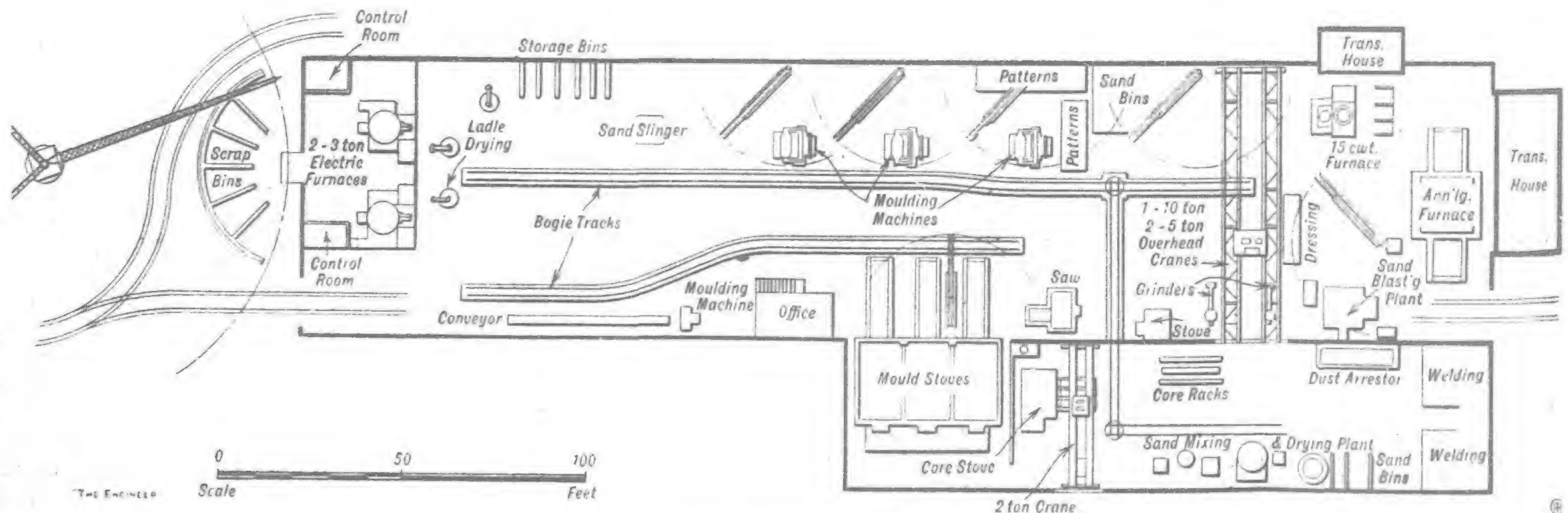
Specially constructed holders secured to the arms take the graphite electrodes which can be adjusted, without boarding the furnace roof, by hand wheels* on the electrode stand. Where the electrodes pass vertically through the roof they are completely sealed by water-cooled cylinders, so that hot gases cannot escape and the electrodes are better protected against loss by burning. A steel spider above the furnace shell supports the water-cooled cylinders in such a manner that they are freely suspended over the roof, which is consequently not subjected to load. The centers of the three electrode openings in the roof lie on the electrode circle with a diameter that ensures good and uniform melting, and prevents cold corners in the furnace. As the electrode circle is variable, if any alterations are made to the thickness of the furnace lining, it can be increased or reduced. The electrode arms can be adjusted longitudinally and laterally. By reason of the compensating rope system the electrodes never run hard on to the solid charge, for immediately contact is made with such a charge the load is taken

off the ropes, which then slip on the drums. In contrast to rigid electrode guides, this rope system obviates forcible contact with the charge and electrode breakages. The furnace can be tilted down through an angle of 40 deg. from the horizontal, and in the opposite direction through 15 deg., to facilitate slagging. Totally enclosed, the tilting drives are situated laterally outside the furnace heat zone.

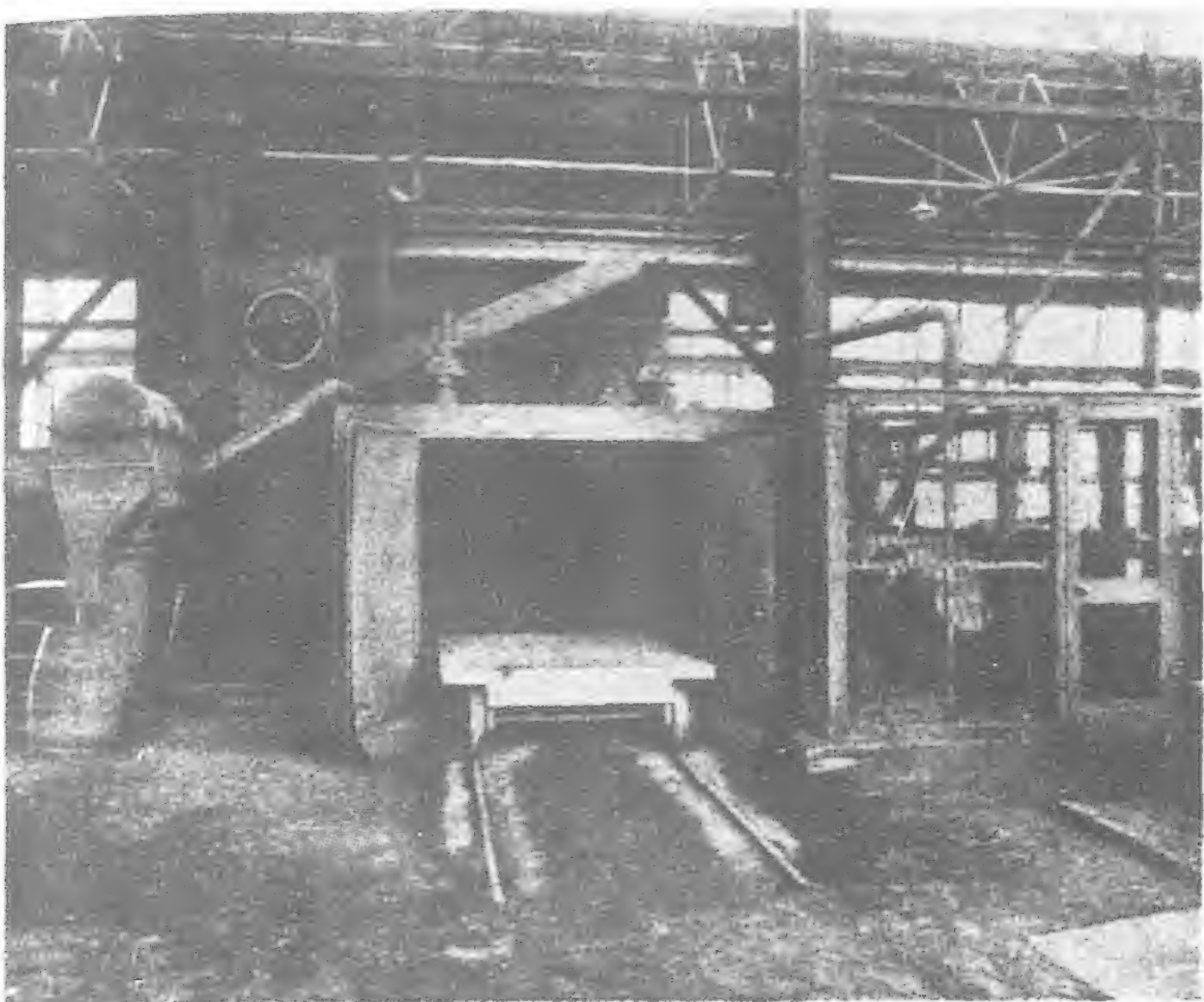
For supplying each furnace there is a 1,500-kva, three-phase, 11,000-volt, 50-cycle transformer, with voltage tapplings for melting and refining. Specially designed for furnace operation, each transformer has motor-operated off-load tap-changing switchgear, an oil conservator, and a three-phase oil-immersed reactor for limiting the current during the melting period. As the secondary connections



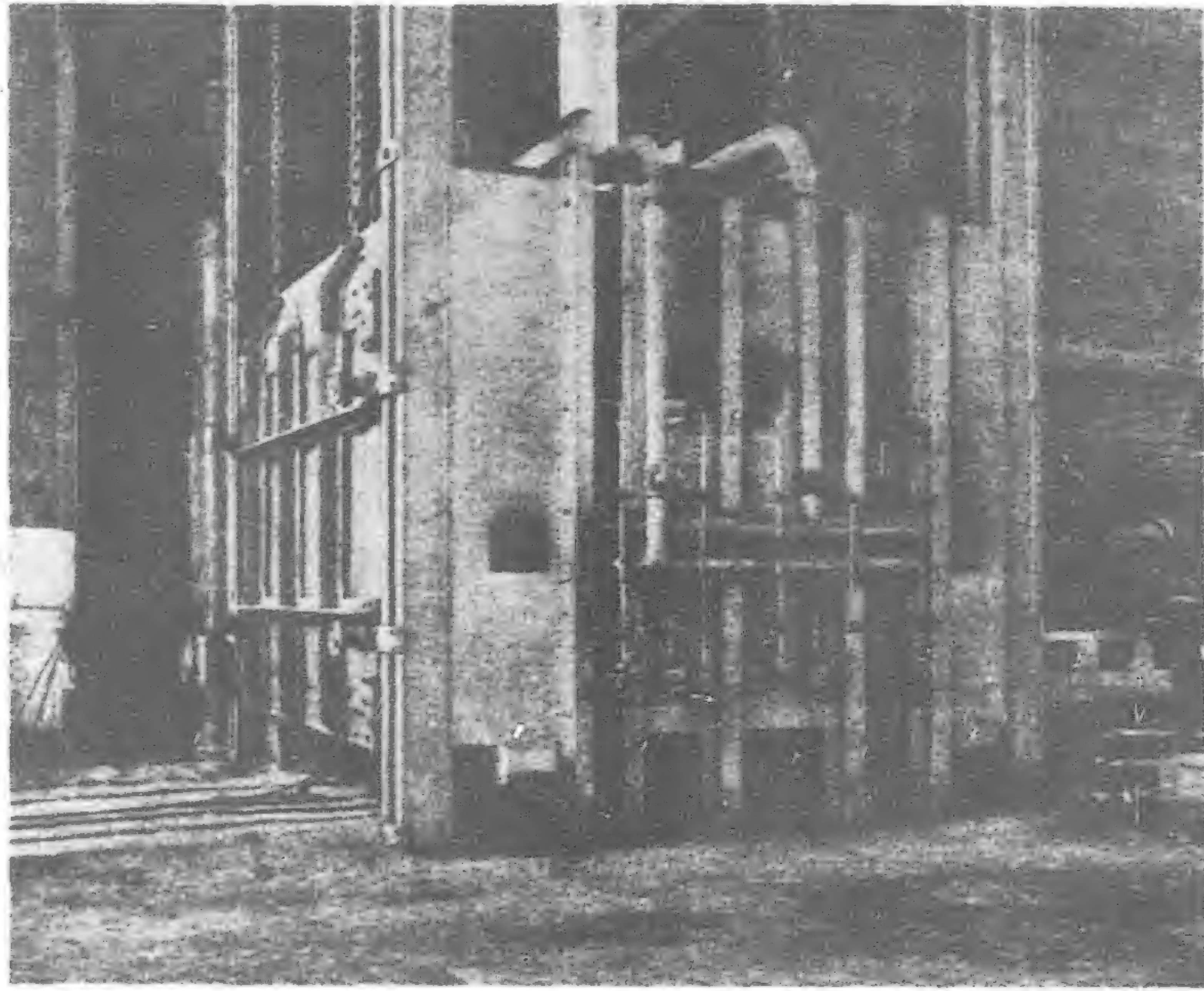
Sawing machine for risers



Plan of steel foundry



Sand blasting equipment



Annealing kiln

are laid out in accordance with the latest practice, a good power factor is secured. In view of the frequent operation of the switch for arc furnace duty, use is made of the Siemens-Schuckert expansion circuit breaker, which has been found to be far more satisfactory than an ordinary oil breaker.

The 15-cwt., three-phase, fixed roof "Efco." Heroult furnace, supplied by the Electric Furnace Company, is provided with motor-operated tilting gear, water-cooled doors, and adjustable electrode arms to enable the electrode pitch circle to be varied. Motor-operated electrode gear is fitted. Movements of the balanced electrode mechanism are transmitted from the electrode winches to the electrode carriages by ropes, arranged so that in the event of the electrodes coming into contact with a solid part of the charge the ropes slip on the driving drums and prevent breakage of the electrodes. Electric regulators having current and voltage relays enable the load on the furnace to be automatically controlled throughout the complete melting period. Rated at 450 kva, the transformer has tapplings on the primary windings to give various secondary voltages. The average time for a complete heat, including melting, refining, and charging, is about two hours.

Moulding.—The principal moulding equipment consists of three "Pneulec Herman" 4,000 lb. Jarr Ram Rollover machines, each with sand bins and hydraulic crane. These machines are used for quantity production of casting from 5 cwt. to 20 cwt. and make in the region of fifteen moulds (from 2-ft. square to 4-ft. square per day).

A "Sandslinger" is used on jobbing work either light or heavy. Small castings from a few pounds to 28 lb. required in quantities are made on a Jarr Squeeze Turnover machine. On this machine moulds are man handled and a roller track conveyor takes the completed moulds to a suitable casting station.

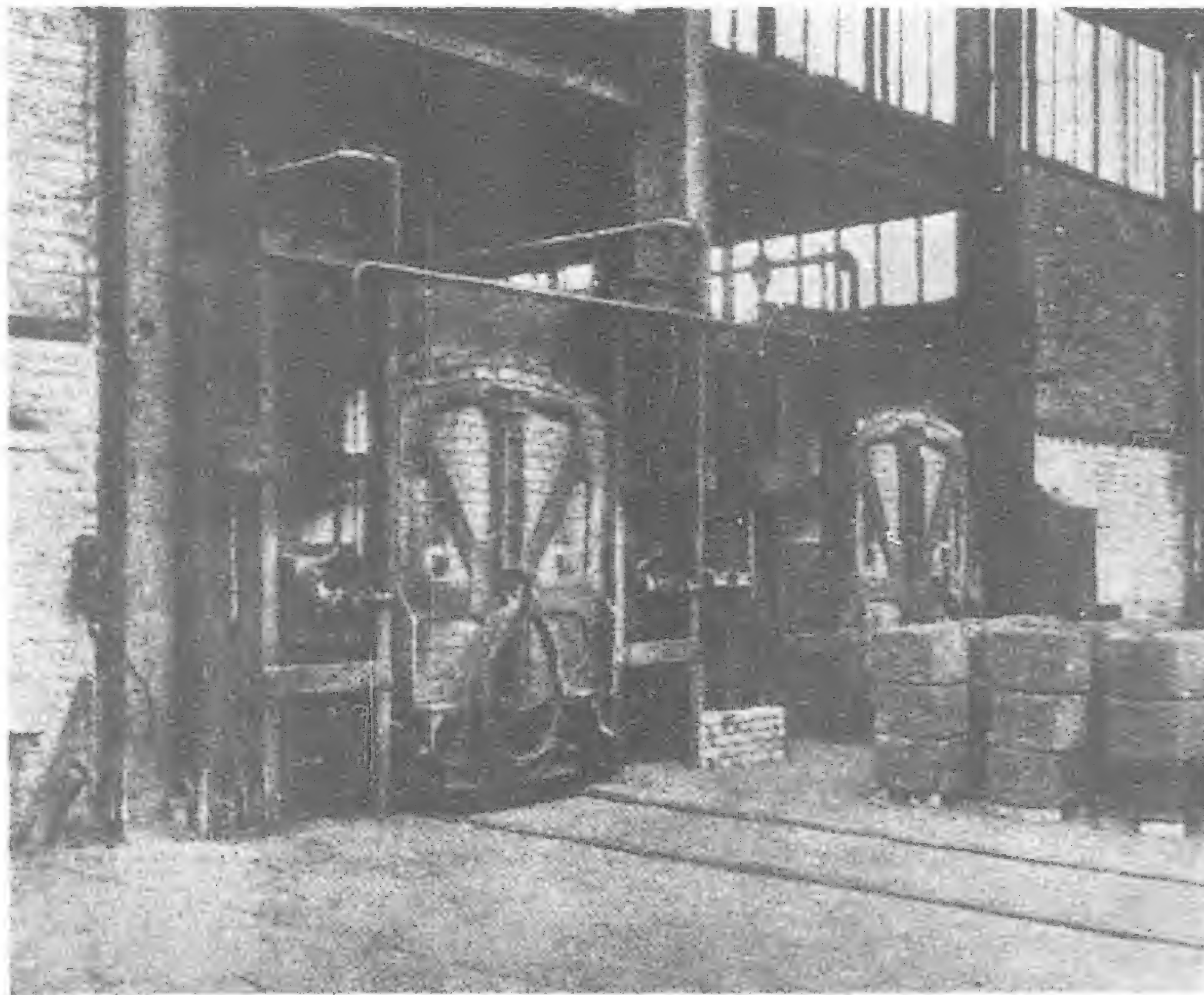
All the heavier castings are made in dry sand. A battery of three mould-drying stoves receives the moulds directly from the moulding machines. These stoves are fitted with recording pyrometers, and a system of forced draught employed in the fire-box gives uniform drying.

All cores are made in a section of the small bay, either by hand or on two "Pneulec" Jarr Ram machines. The latter are conveyed to a continuous drying stove, while larger cores are dried in a forced-draught bogie-type stove.

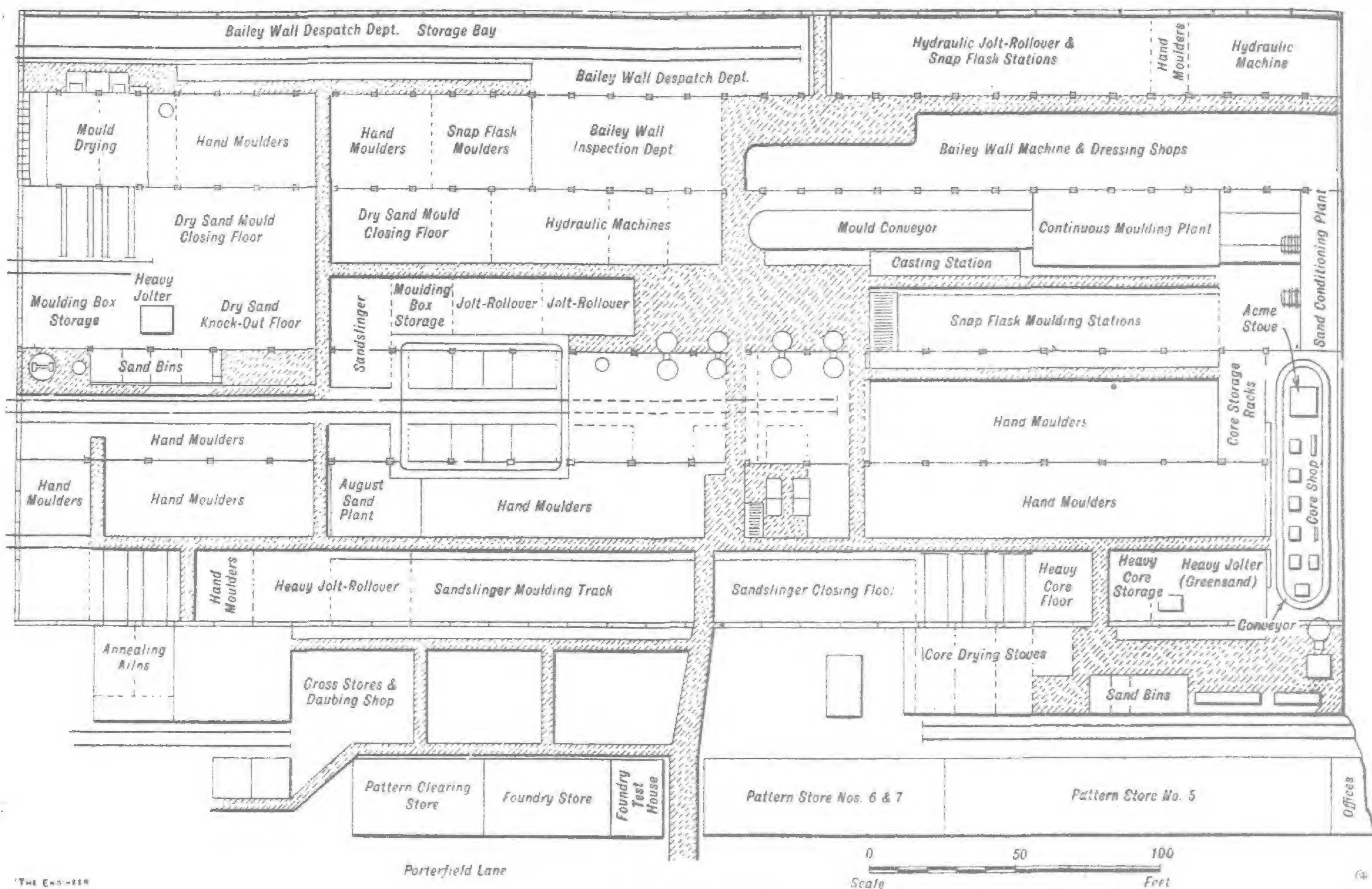
Sand Treatment.—A high quality synthetic moulding composition is used for all dry sand castings. This sand is mixed in a "Pneulec" mill of 2½ tons per hour capacity. A disintegrator and electric riddle are also used in mixing green sand. "Pneulec Royer" machines are used in the foundry for the mixing of backing sand. Core sand consists of silica sand and oil binders, mixed in a "Rotoil" mixer. Sand tests are made in the foundry laboratory during each day. Sands as delivered to the foundry pass through sieve tests to establish their grain size, and analyses are made on all materials used in sand mixtures. Permeability, strength, and moisture tests are made and recorded on each batch of mixed sand.



Moulding sand mixing plant



Annealing kilns for malleable iron castings



Plan of iron foundry

We noticed that the risers of castings are cut off close to the casting face, and were informed that mechanical cutting is preferred to gas cutting, as it eliminates the effects of local heating, whilst the cleaner job produced makes more easy the subsequent machining.

When the runners and risers have been removed the castings are subjected to a high-pressure sand blast. Normal dressing is then proceeded with, using pneumatic chisels, swing and stationary grinders.

Heat Treatment.—Heat treatment is carried out according to the type and composition of the casting being annealed, in a furnace open at either end. Double bogies are used. While one bogie is in the furnace the other is being unloaded or loaded for the next heat-treatment cycle. A recording pyro-meter provides a record of the heat treatment given to each charge.

The Iron Foundry

The manufacture of the Babcock and Wilcox boiler was begun in Scotland in the year 1882, when the iron foundry formed a very important shop in the works. Since that date the story of the foundry has been one of continual expansion and improvement, culminating in a complete rebuilding, which was begun some four years ago and which terminated during 1938.

The general arrangement of the foundry and dressing shop is as shown on the accompanying drawings, from which it will be seen that it consists of four bays 512-ft. long, with a total width across the four of 256-ft.

Bay No. 1 is confined to green sand moulding and is equipped with two large Jarr Rollover moulding machines and one "Tractor Sandslinger." It is served by one 10 ton and two five ton Babcock and Wilcox electric overhead travelling cranes, while the "Sandslinger" machine has a special gantry which supports two 1½ ton cranes operated from the moulding floor.

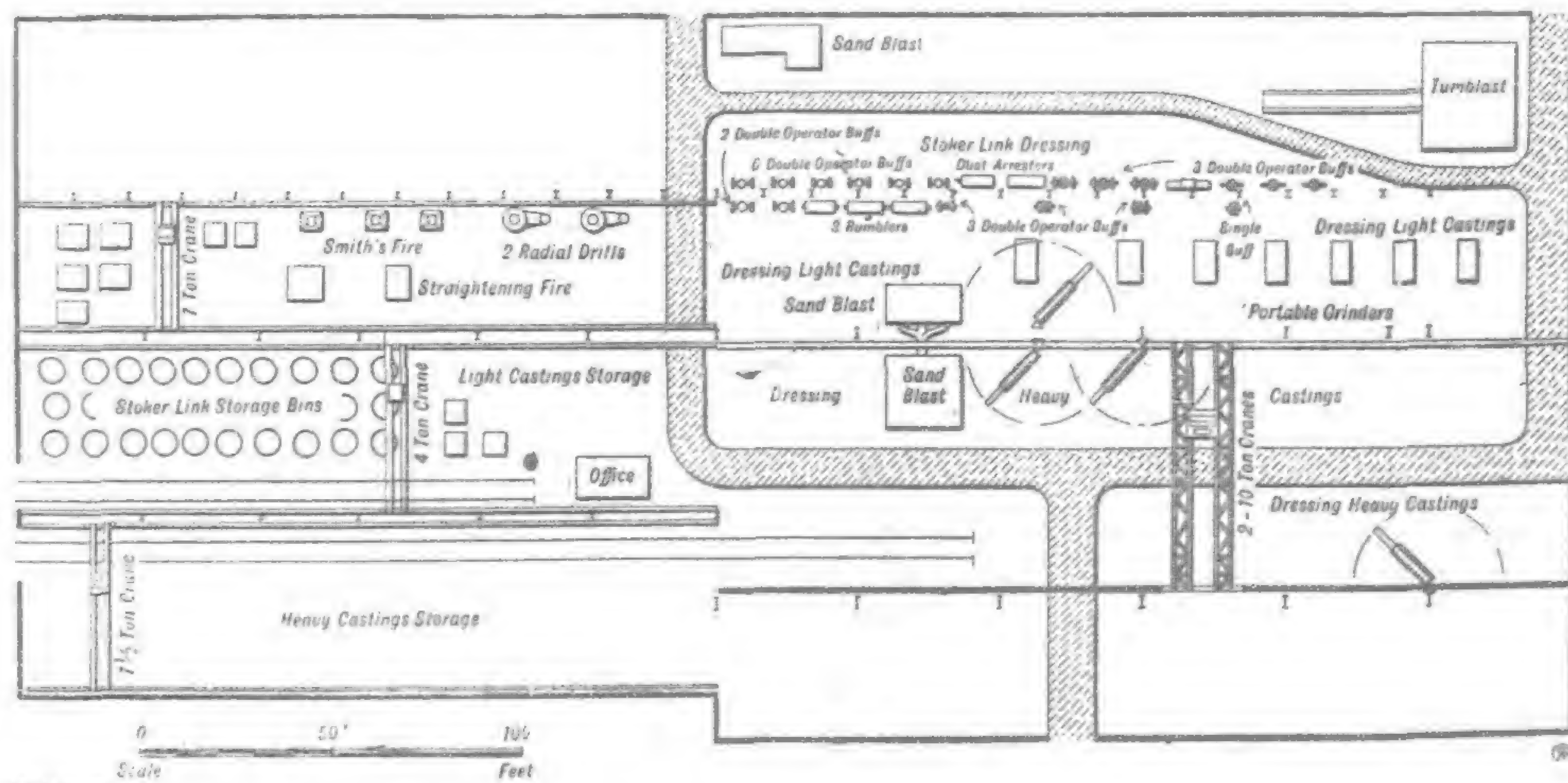
Bay No. 2 is occupied by the melting unit, storage bins for metal, and other raw materials, and in the remainder of this bay light castings are also made.

Bay No. 3 contains the dry sand moulding section, where the largest castings are made. One stationary "Sandslinger" and one "Jarring" machine assist in the moulding of these castings. At the other end of this bay there is a continuous casting plant and a battery of snap flask moulding machines.

Bay No. 4 contains the Bailey block department, including moulding, dressing, machining, and packing. Part of this bay is also used for alloy iron casting, and an oil-fired crucible furnace for melting these special alloys, with suitable storage bins for materials, is housed in this section.

At the present time 140 moulders are employed in this foundry. Approximately 21,000 tons of finished iron castings are produced per annum. Cast iron in accordance with all existing British Standard Specifications is produced, as well as many special mixtures giving wear-resisting and heat-resisting qualities, and also malleable iron castings.

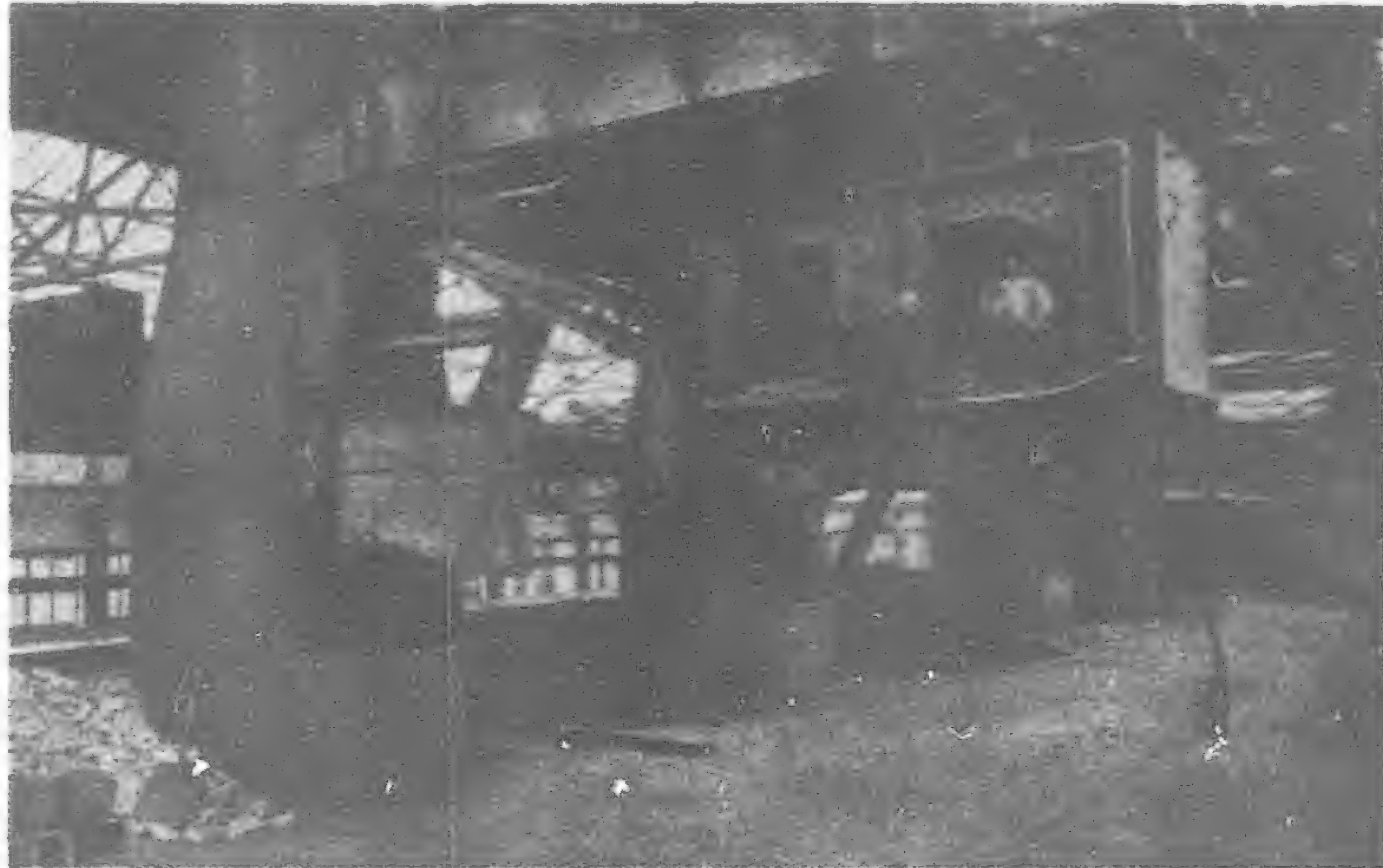
The foundry is served by a battery of five cupolas of which



Plan of iron foundry dressing shop



Preparing cupola charges



Cupola charging platform and crane

four are of the balanced blast design. They melt at a rate of ten tons per hour and an average of 600 tons per week. The lay-out for preparing metal charges is worth special mention as it facilitates the accurate weighing of each component of the charge and results in a very uniform quality of product. The cupola charges are weighed into self-discharging vessels, which are lifted by a special charging crane and deposited within the cupola. The central position of the melting unit makes for very good distribution of metal throughout the foundry. Views of the cupola charging platform and the charging crane are reproduced.

Moulding.—Hand moulding is confined to castings made in small quantities and where additional pattern-making costs for a pattern suitable for machine moulding would not be justified. About 500 moulds per day are made by hand. The largest casting is a base plate for pulverized coal plant. It measures 16-ft. long by 6-ft. 6-in. wide by 1-ft. 6-in. deep, and weighs approximately five tons. Various types of Jarr Rollover moulding machines, hydraulic squeeze machines, and "Sandslingers" are used. The total production is about 2,600 moulds per day.

Continuous-casting Plant.—The most interesting feature of the foundry is the continuous-casting plant consisting of a Morris endless conveyor which carries the moulds from the moulding machines to the casting station and from there to the knock-out and sand-reclaiming plant. This plant is serviced by nine hydraulic squeeze moulding machines designed and made within the Babcock and Wilcox organization. Twenty-seven men and eight youths provide the man power for this unit, which produces 5,500 to 6,000 moulds per 8½-hour day, the total number of castings per day being in the region of 30,000 and the weight approximately 40 tons. This output is based on a single shift only, and were a double shift worked it would, of course, double the production. The moulding sand in this plant is prepared and carried over the various conveyors and elevators at the rate of 30 tons per hour, a total of 240 tons of sand being reconditioned each day.

The facing sand for castings, other than those made on the conveyor, is prepared in a sand plant made by Augusts, Ltd. It

consists of an elevator, storage hopper, silt extractor, screen, magnetic separator, and skip hoist. Each mill is also provided with a disintegrator. The capacity of this plant is five tons per hour. It is worked day and night and reconditions 60 tons of sand per double shift. Views of Pneulec sand preparing machinery for the moulding sand and the continuous-casting plant are reproduced above.

The knocked-out castings are conveyed from the foundry by rail and by motor truck to a large and well-equipped dressing shop. The larger castings are cleaned in a sand blast cabinet and then moved by overhead cranes to dressers' benches for fettling. Stoker links and small castings are delivered directly from the continuous-casting plant to a Tilghman "Wheelabrator," shown herewith. It combines the properties of a rumbler and a sand blast, and discharges the castings on to a steel belt conveyor. From the conveyor the castings are picked off, sorted into their several classes, and put into bogies which contain 10 cwt. These bogies are then passed to various types of grinding wheels into a straight line of production, the operations taking the following sequence:—Gauge, profile buff, spindle buff, side buff, and gauge. Then the castings are weighed and either dispatched or put into stock bins. A stock of nearly 350,000 standard stoker links is maintained and any order for replacements can be supplied instantly.

Ten tons of malleable iron castings pass through the dressing shop each week. The heat treatment of these castings is carried out in two tar-fired annealing kilns each fitted with recording pyrometers. They are illustrated herewith.

A very efficient system of dust extraction has recently been installed, and everything possible appears to have been done to make conditions comfortable for the workmen.

Core Shop

The core shop lay-out is shown on the ironfoundry drawing, and is a good example of straight-line production. Raw materials

(Continued on page 305)



Continuous-casting plant



Core making department

Ceylon Has Reason to be Proud of its Government Railways

(Ceylon Daily News Supplement)

EIGHTY-THREE years ago when the Legislative Council passed the Railway Bill by a majority of 9—7, or when a year later Sir Henry Ward turned the first sod of the Ceylon Railway, the most enthusiastic advocate of the new transport system never dared to dream that within a lapse of a little over three-quarters of a century, Ceylon would be served with a network of lines joining together the most secluded outposts of the Island.

In fact there was a strong reactionary section which warned the Island against "plunging without thought into the whirlpool of Railway speculation."

The history of the C.G.R. is the story of the steady growth of a vast Island-wide organization towards which the initial step was taken in 1862 when the Government resolved to raise a loan of a £1,000,000 for the Colombo-Kandy line.

The first railway engine arrived in Ceylon in January, 1864, and in the same year a special train carried H.R.H. the Duke of Brabant to Ambepussa, although the line was not complete until the end of the next year.

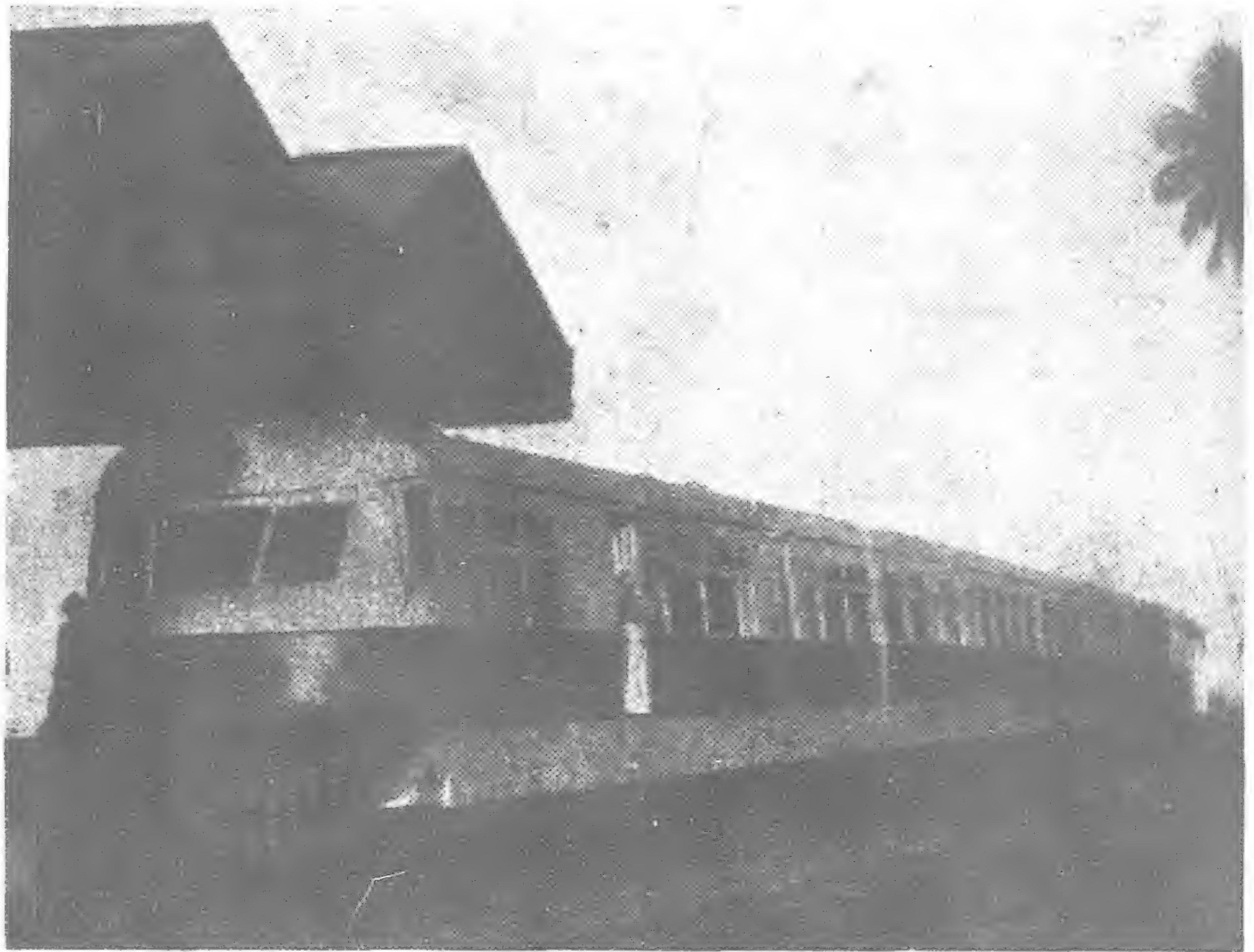
A girder bridge across the Maha-Oya and another over the Kelani-Ganga were completed in 1867 and in the same year the last rail joining Colombo to Kandy was laid.

Colombo was thus joined to Kandy, and the much dreamed-of "mountain-railway," became an accomplished fact, serving as a monument to the enterprise of those early pioneers, foremost among whom was the indomitable Faviell, whose name will ever be indelibly written in the history of the Railway.

Persistent agitation backed by the Uva Planters saw the emergence of the first division from Nawalapitiya to Hatton on June 4, 1884, the second division to Talawakelle five months later, and the last section to Nanu-Oya on May 20, 1885.

Extension to Moratuwa

This line was not to end here. The Uva Planters cried for a continuation to Haputale, and the Governor pressed home the issue to the Secretary of State, until the latter gave in and authorized His Excellency to carry on the line. In 1894 a further extension



Streamlined oil electric trains supplied by the English Electric Company's Preston Works and recently added to equipment of The Ceylon Government Railways

was made from Haputale to Bandarawela, and thirty years later, in 1924, a final extension was made to Badulla.

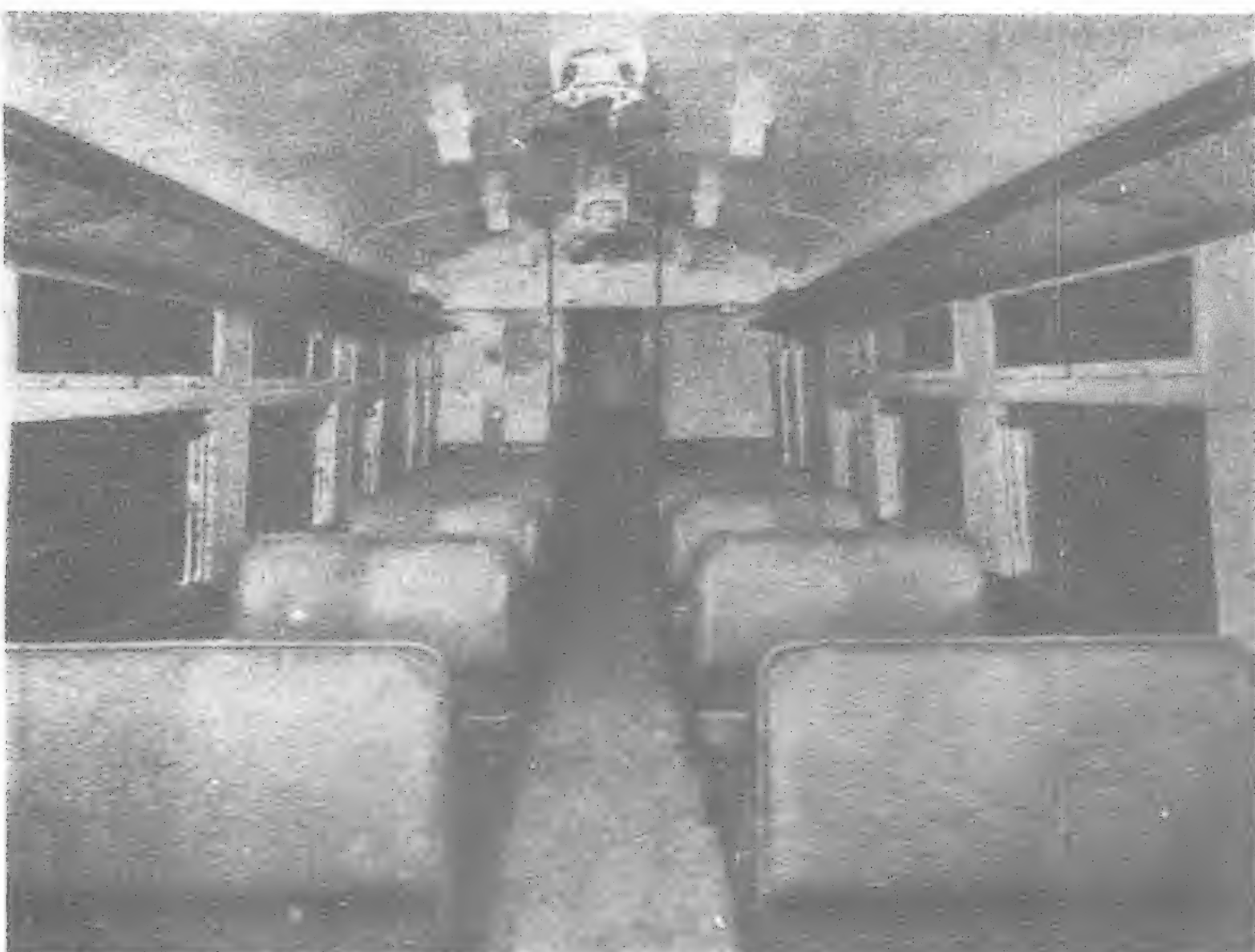
Soon after the completion of the Colombo-Kandy line the claims of Matale for an extension of the line to that town were voiced. In 1878 Sir J. Longden inaugurated the work and opened the line for traffic two years later.

It was in connection with the extension to Moratuwa that the present Galle-Face promenade stood in danger of the vandal hand. The demarcated route was to cut through the seafront; and this aroused a storm of protest from the public, for Sir Henry Ward himself had recommended the Walk to his successors "on behalf of the ladies and children of Colombo."

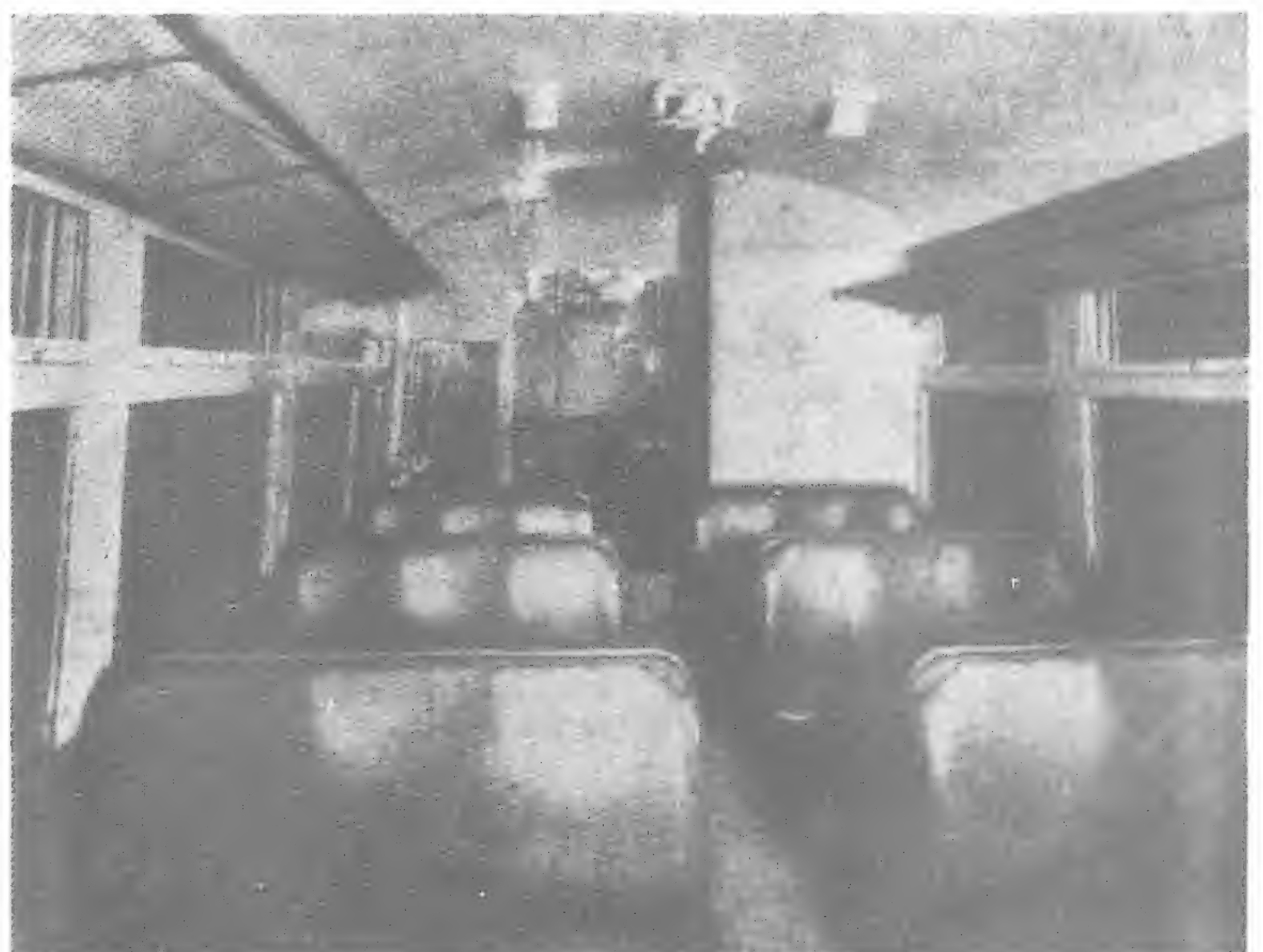
The Moratuwa line was opened in 1877 and extended to Panadura, only to be further continued to Kalutara two years later.

Express Service

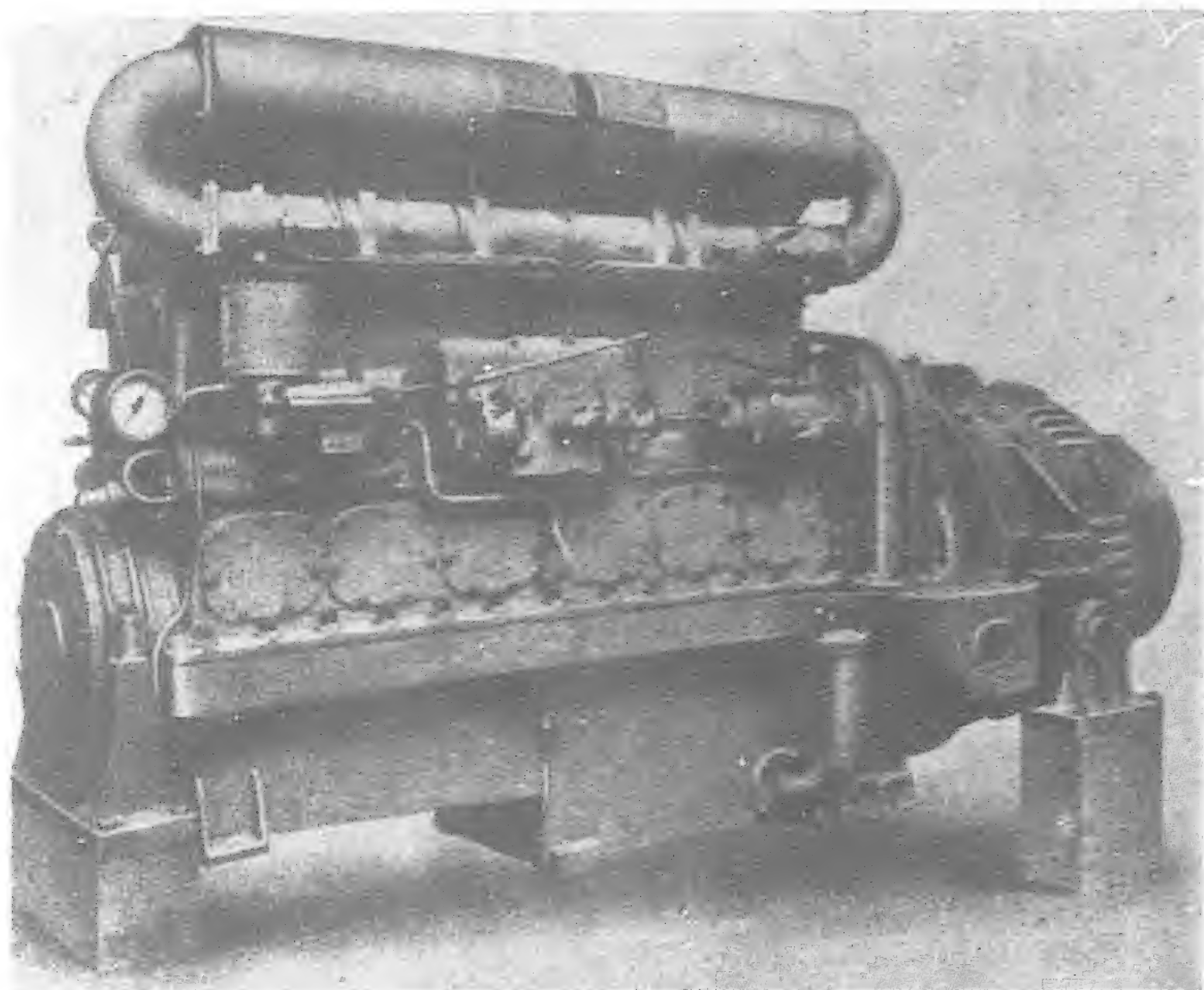
The year 1885 saw the inauguration of a new railway service. Express trains were run between Colombo and Polgahawela, and refreshment cars were introduced between Colombo and Nawalapitiya. The same year saw the Railway Department's reorganization and the creation of the posts of General Manager, Engineer, Way and Works, Locomotive Engineer, and Traffic Superintendent.



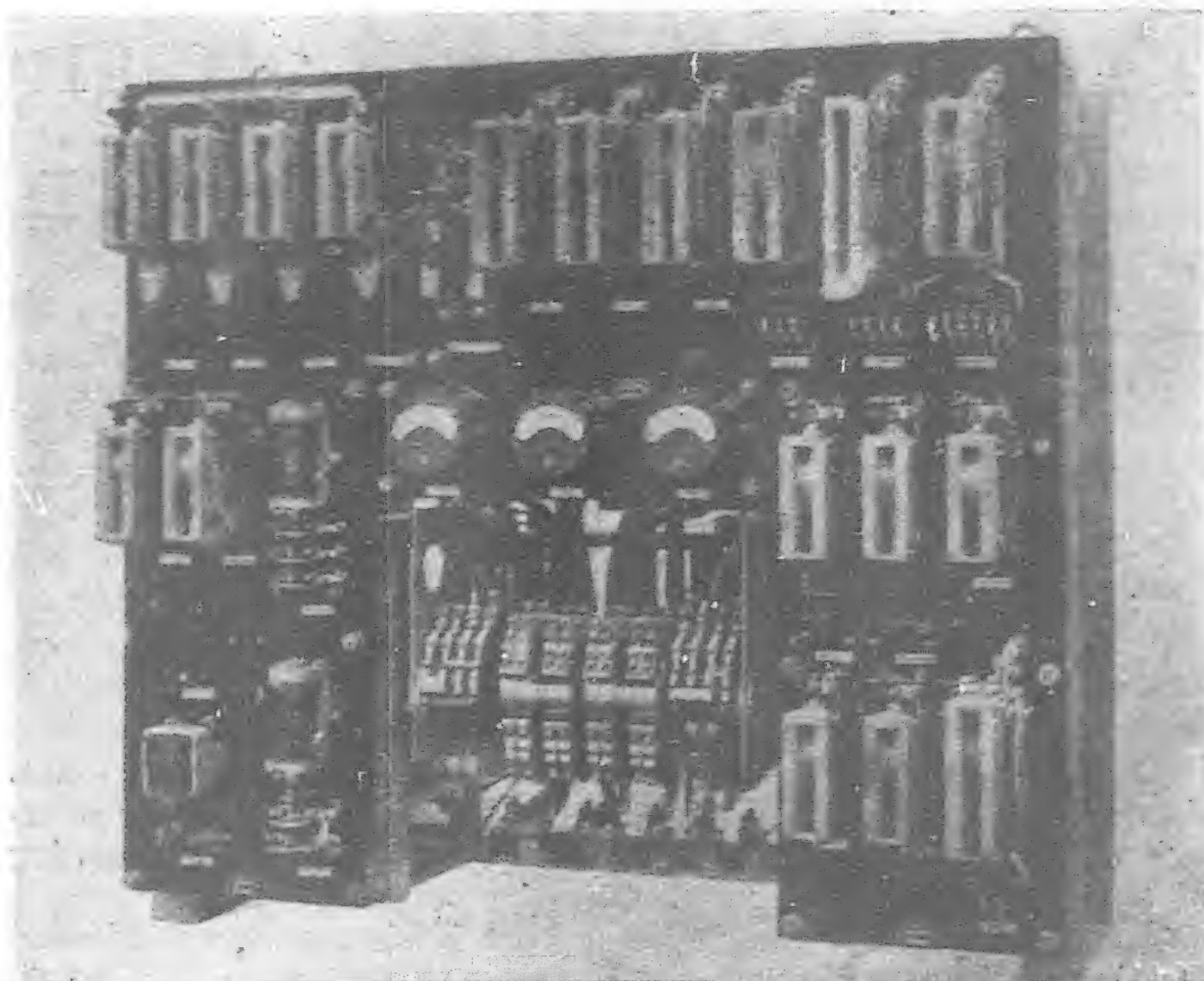
Interior of second-class compartment



Interior of third-class compartment



180 b.h.p. oil engine generator unit for Ceylon's streamlined oil electric trains



Control frame in service on Ceylon's streamlined oil-electric trains

In 1839 the building of a permanent station at Maradana, to replace the old wooden structure was urged, and ultimately constructed in 1893.

The coast-line was extended to Alutgama from Kalutara in 1890. Two years later the night mail service was started, and a new line constructed in 1894 from Ambalangoda to Galle, and later extended to Matara.

The first railway engine made in Ceylon was in the Maradana workshop in 1896, and for the first time, in 1900, the Colombo yard was lit with electricity.

Jaffna's railway started in 1902 with a short line from Kankasanturai to Chavakachcheri, and in the same year a continuation was made to Pallai. The Avissawella line from Colombo was started at the same time marking the first break of the usual gauge. This line was later extended to Yatiyantota in 1903, which year marked the opening of both the Kurunegala-Anuradhapura and the Nanuoya-Nuwara Eliya sections.

The next year saw the opening of the N'Eliya-Ragala line, and three years later, work was begun on the Negombo railroad.

The most important events in recent times were the opening of the Indo-Ceylon route, started on March 1, 1914; and the extension to Trincomalee in May, 1927.

Such is the growth of the local railway enterprise; but behind the matter-of-fact array of names and figures is the romantic tale of pioneer engineering feats calculated to further the social and industrial progress of Ceylon.

Diesel Unit

The Diesel Unit service that was inaugurated last year represents another effort on the part of the Ceylon Government Railway authorities to keep the railway abreast of the latest developments in modern railway transport.

It is also one of the numerous efforts made by the railway to re-capture a goodly portion of the passenger traffic over which it once enjoyed almost a monopoly in Ceylon.

To make railway-travel more comfortable, more economic and speedier is the aim of the railway management to-day and to achieve this end as early as possible efforts are being made from various angles. While the mechanical section of the railway is turning out new third-class cushioned carriages and experimenting with them, the operating section is trying to run speedier trains punctually and the traffic section is awakening from its former lethargic attitude towards the patrons of the Railway and is being gradually accustomed to look after their comforts and be all courtesy to them.

Need for Co-ordination

Be it said to the credit of the Railway management that ever since they felt the first pinch of road motor competition in 1930

they investigated into the matter and urged the need for the co-ordination of road and rail transport to end the uneconomic competition in the transport of both passengers and goods. Mr. T. E. Dutton, a former general manager, was the first to foresee this plight. Mr. E. W. Head, his successor, adopted the same line of action and urged on the Government year after year the need for a co-ordinated policy in the matter of road and rail transport. Mr. W. G. Hills, the present acting general manager, who is the last in the link of the "old brigade" of railway officers who served in the railway from the days of Mr. G. P. Greene, is also of the same view and says: "Little can be done in this direction until some system of co-ordination between rail road service is evolved."

The dwindling railway revenue ultimately led to the appointment of the Hammond Transport Commission. Some of the recommendations contained in this Commission's report such as immediate closing down of certain non-paying sections of the railway were deemed too drastic and a sub-Committee composed of Mr. C. H. Collins, who was at the time Acting Financial Secretary, Mr. O. E. Goonetilleke, Auditor General, with Mr. W. A. de Silva, Secretary to the Minister of Communications and Works as Secretary, was appointed to go into the working of the railway. A large number of the recommendations of this sub-Committee, which were subsequently approved by the Executive Committee of Communications and Works and sanctioned by the State Council, were almost immediately carried into effect.

Among the measures that have been thus adopted recently to recuperate the railway revenue and to meet competition are:—

The issue of cheap tickets for all major festivals and holiday seasons and race meets;

The issue of tickets at concessionary rates for parties such as of school-boys travelling on the railway;

The issue of cheap tickets to attract traffic such as "Tour Ceylon" Tickets, Excursion Tickets and the latest, Excursion Day Returns;

The reduction of freight on goods by quoting special rates for large consignments between certain stations;

The granting of extended periods for the free storage of goods in special cases;

The adoption of a more generous policy in regard to the payment of claims for compensation for goods lost or damaged.

The introduction of a rail car service in various parts of the Island catering to short distance traffic.

The establishment of parcels and goods collection and delivery services in Colombo, Kandy and Kurunegala;

The opening of stations and halting places for van goods traffic;

An all round policy of retrenchment, etc., to reduce the working expenses.

Progress of the Foreign Trade Zone (Free Port) Principle

Address by Mr. THOS. E. LYONS, Executive Secretary, United States Foreign-Trade Zones Board, at the Twenty-fifth Annual Convention of the Pacific Coast Association of Port Authorities at Portland, Oregon, on August 17, 1938

(The Dock and Harbor Authority)

THE Pacific Coast Association of Port Authorities has honored me by asking for a general report of the progress of the foreign-trade zone principle. You of the port and terminal profession are a wide-visioned group, albeit tempered by daily problems of stark reality. In few professions is the "sink or swim" alternative of such continuous importance. Adversities of man and nature have developed a fine spirit of courage within your ranks, and have kept you alert to the meaning of and necessity for progress.

Port authorities know that a port is simply a collection of terminals within a circumscribed area, and are aware that a foreign-trade zone is a terminal within a port, but incorporating certain features not ordinarily available. It is these features that have aroused the interest of port authorities who naturally are interested in any constructive idea or facility that promises port progress. Unfortunately, in some ports there is not the unity of services necessary to a terminal. The union of land and water carriers may not be complete, nor may the function of storage work in harmony with needs of the port. It is the endeavor of such associations as yours to aid in the solution of these problems and to observe progress made elsewhere in the efficient handling of merchandise.

World-wide Importance of Zones

It is hard to pick a sizable maritime section of the earth that does not contain facilities for the cheap and efficient storage and handling of foreign commerce. Where zones have not been established and where their need is felt, you may be sure of finding advocates of the principle that underlies zone establishment.

Even in these hard days of economic nationalism, the principle survives and the creation of zones continues. The principle survives because it is based on truth and no amount of opposition or lack of understanding can alter its existence. It will present itself at every opportunity, and by its application should prove wrong those who oppose it.

Two recent instances indicate the progress of the zone or free port principle. The Government of France, after many years of discussion, has passed a law similar to that in effect in this country. It is expected that a number of the important river and sea ports of France will establish customs-free zones under this law within the next few years. This right is extended to Algerian ports, which also have indicated a desire to create such zones in their modernized harbors.

In Genoa, where extensive new port construction has been undertaken, an area has been set aside and plans have been completed for the segregation of a zone to be operated on the same principle as are the present free ports of Trieste and Fiume. A royal decree to this effect was published last March, and operation awaits completion of the necessary facilities.

In Cuba, at the Port of Matanzas, are being created the facilities of a foreign trade zone. Rules and regulations have been promulgated, and it is expected that the zone will be in operation shortly. It promises to relieve the over-crowded harbor facilities of Havana and to bring new business to the Island of Cuba.

The Two Applications of the Zone Principle

You, of course, are familiar with the principle upon which zone establishment is justified: That until merchandise enters the country of consumption, it should be free. To re-state the principle the other way round, no country should restrict the freedom of merchandise which has not applied for customs entry.

In application, the term "merchandise" is restricted to those lawful commodities of peaceful trade; and the term "free" indicates freedom from all duties and taxes of whatever nature,

and freedom, within reason, from customs and other governmental regulations not necessary for the protection of the revenue, public health or safety.

A country having a high tariff imposes, proportionately, more restrictions on foreign commerce than a low tariff country, and thus has a greater need for a neutral vestibule at major ports to care for those products which are destined to a third country, or which are not prepared for entry into the country at the time of arrival.

Merchandise in transit, merchandise for transshipment, foreign merchandise for export—these are the commodities which welcome the freedom of the foreign-trade zone. In 1937 more than 253 million dollars worth of these products passed through our ports, and these products, by every right, were entitled to freedom from all duties and taxes of whatever nature. It is a purpose of foreign-trade zones to make available to these transit goods the freedom they require.

Another group of foreign merchandise is attracted naturally to the foreign-trade zone; this group is intended for eventual consumption, but at the time of importation requires conditioning or storage before entry. The potentialities are indicated by the fact that in 1937 nearly 470 million dollars worth of this type was thus classified for warehouse entry.

There is a third group of foreign commodities, nebulous, at the present time, but capable of almost unlimited expansion. This group is composed of new products, and products which bring new business to the country. By reason of favorable circumstances, not the least of which is a minimum of customs expense and regulation, the great ports of Europe have become world markets for many commodities. Liverpool for grain, London for wines and spirits, Bremen for cotton and coffee, Amsterdam for rice, etc., for a long list of ports and commodities. It is not unreasonable to foresee a shift of some of these markets to an American foreign-trade zone in the near future. I am sure that when the possibilities of foreign-trade zones are fully understood by all, and when research has been undertaken, this group will overshadow all others in taking advantage of zone opportunities.

Zone Progress Abroad

Observation of how this principle is faring in other countries shows how consistently the customs-free zone is the method adopted as the most satisfactory. In Europe—Latvia, Poland, the Free City of Danzig, Sweden, Denmark, Germany, Switzerland, Czechoslovakia, Yugoslavia, Spain, Italy, Greece, and now France, have adopted the customs-free zone. Most of the colonial possessions of these countries also enjoy a similar status. In Asia—Siberia, Manchuria, Hongkong, Singapore, Portuguese and French India are a few territories having some form of customs-free area. In Latin America—Mexico, Curacao, Tierra del Fuego and Uruguay have zones or territories exercising the principle. Several other countries in Latin America have under construction or consideration free zones, among which may be mentioned Cuba, Venezuela, Colombia, Brazil, Argentina, Paraguay, and Bolivia.

Where there exists economic justification for these zones, that is, where world trade passes through ports for conditioning and distribution, generally will be found successful and progressive free zones in such ports. In Sweden, the free port at Stockholm handled 490,000 metric tons of cargo in 1937, a 33 per cent increase over 1936; the free port at Gothenburg, also in Sweden, was visited by 5,772 vessels with a net tonnage of 4,043,000 tons, which was approximately half of all vessels engaged in foreign traffic entering Gothenburg during 1937.

At the new Polish Port of Gdynia the total merchandise traffic for 1937 was 9,147,000 metric tons, an increase of 16 per cent

over 1936. Of this traffic, overseas imports increased by 28 per cent in which the well-equipped free zone had a very considerable share. Incidentally, the free zone at Gdynia has become an important arbitrage point for cotton, hides and skins, and coffee.

The Greek free zone at Salonika is strategically placed, both for traffic from the Mediterranean to the Black Sea, and as an Aegean outlet for the Balkan countries. Since its creation in 1925, the zone's importance has increased from practically nothing to the handling of 397,000 tons of imports and 375,000 tons of exports last year.

Similar progressive statistics could be quoted for Hamburg and for Copenhagen, for Trieste and for Alexandria, Egypt, but this report would gain little by their addition, other than to show that free zones can be a useful and successful adjunct to the facilities of many ports.

Zone Progress in the United States

Turning our attention from foreign free ports to the progress made by the free port principle in America, we find every indication to encourage our faith in this principle.

Mobile, an alert and increasingly important Gulf port, qualified for, and was awarded a Federal grant to establish a foreign-trade zone. After ten months of preparation, the zone was opened on September 21, 1937. While it is yet too early to report, there seems to be a number of favorable indications for the success of the zone. Chief of these indications is the general awakening of interest in the port since Alabama applied for the grant late in 1935. The economic survey required for the proposed zone indicated the possibility of additional industries and increased commerce for the port. That the Port of Mobile has taken full advantage of the information developed in the survey and the stimulus resulting from it is shown by the 1937 figures. In 1937 the port had increased its water-borne tonnage over 1935 by 35 per cent, and the value of its foreign trade by 60 per cent. Since 1935, there have been attracted to Mobile a sizable number of major industries that will further increase port and city prospects.

San Francisco has applied to the Board for a grant establish a zone. Pending San Francisco's determination of a suitable site that can be properly segregated the Board has not taken final action to bring a zone to the Pacific Coast.

San Juan, Puerto Rico's principal city and port, also has filed an application with the Board. Progress has not yet reached the stage of a hearing but there is evidence of increasing interest there in supplying the Board with necessary data for final action.

The New York Zone*

New York, which established the first zone in the United States, is encouraged in the knowledge that shippers and manufacturers throughout the world are taking an interest in the zone. Despite the handicaps under which the City of New York struggled in the early operation of the zone, a very creditable showing was made during the last full month of the Dock Department's operation, April, 1938. On April 30, the approximate value of goods on hand was \$764,781. During the month of April the approximate value of merchandise received and delivered by the zone was \$258,716, representing a modest tonnage of more than 512. There were 20 kinds of merchandise owned by 19 customers who had imported from 15 countries and re-exported to three foreign countries. During the same month of April, the Customs revenue to the Government was more than \$12,000. As encouraging as the figures are, listen to comparative figures for June, only two months later!

The approximate value of goods on hand, June 30, was \$1,800,000, an increase of 136 per cent. During the month the approximate value of merchandise received and delivered by the zone was \$694,744, an increase of 168 per cent, and an increase in tonnage handled from 512 to 4,461, or 770 per cent. The Customs revenue to the Government was over \$19,000, or 52 per cent greater than in April. Should these rates of increase continue, the New York Zone will need greatly enlarged facilities by this time next year.

Recently Mr. Newbold Morris, President of the City Council of New York, made the following remarks concerning the activities of the zone during June: "On a typical day, 214 workers were employed in the zone. During the month 62 lighters and eight steamers called there. Twenty-five customers were using the zone

facilities for 74 different kinds of merchandise, including balsam, Brazil nuts, coal tar color, cocoa beans, cod liver oil, electrical apparatus, leather, linen, mica, rugs, straw hats, tapioca flour, and tobacco."

It is interesting to study the commodities which have been attracted to the zone in New York and in what manner they are making use of zone facilities. Selecting a few major commodities from among those now in the zone, it is found that 22,378 cases of Argentine corned and roast beef are being unpacked from heavy wooden cases, relabelled upon order of various wholesale distributors in this country and re-packed in small, light cardboard cartons of American manufacture. As each order is filled, duty is paid and the canned beef shipped out for consumption.

From Italy and Belgium have come 4,100 bales of cotton and jute rugs. The importer stores them in the zone where they may be examined by prospective purchasers, and as he finds buyers the importer pays the duty on the rugs when they are sold and delivered. A substantial amount of money is saved from being tied up in duty on unsold rugs. So successful is this new method of selling rugs, that the importer has transferred his offices to the zone, and now maintains only a small sales office in Manhattan. The importer's unqualified approval has interested other rug importers, and is an indication that the zone may become the focal point of rug storage and distribution.

How zone facilities may prevent an innocent importer from loss is pointed out in the importation of 3,813 barrels of cod liver oil into the zone. Under our Tariff Act, cod liver oil is duty-free, but the Department of Agriculture imposes a severe penalty if the product is not what is claimed or does not come up to the U.S.P. standards. The importer of this product took the precaution of having Agricultural inspection of his oil in the zone prior to entry. He found the oil to be that of another fish, not cod, and is in the position of being able to return the oil without loss or to enter it under its proper name, without penalty.

The Scot will not be alone in appreciating the thriftiness of several nut importers that have some 4,000 tons of Brazil nuts ripening at the zone. The drying of these nuts in the zone is saving the importers approximately \$3.36 a ton in duty, which would otherwise have been paid on the weight of moisture had the nuts been entered into Customs territory upon arrival. An appreciable tonnage is being sacked and re-exported for the Australian market.

It does not take a prophet to see the future pointed out by the importer of 39 hogsheads of South African brandy. Brandy from South Africa is unknown in this country, and the zone has encouraged its introduction. This spirit is 114 proof upon arrival in casks, but by proper dilution and marrying in a huge vat constructed for the purpose, the brandy is brought down to 86 proof, and duty is paid on the lower figure (such duty is assessed on a minimum of 100 proof). In addition, a bottling company has taken up quarters within the zone and will bottle and case brandy ready for re-export or domestic distribution. The importer, the bottler, the labor and the containers are all American. Is it difficult to vision imported whisky, brandy and wines being bottled at the zone from huge casks at great savings in freight and material costs?

A final example of zone convenience is represented by the storing of 500 bales of very expensive Sumatran leaf tobacco in the zone. The tobacco is dutiable at \$1.50 a pound. By storing this tobacco in the cool atmosphere of the zone, not only does the importer keep his capital from being tied up in duties or bond premiums, but he takes advantage of the ideal storage conditions of the zone for his product.

I have named but six of the commodities that have made use of the zone since its inception. Daily the list is being expanded. The process resembles a snowball rolling down hill, and may the slope be long! Chemicals, hides and skins, machinery, textiles, photographic materials, minerals, household effects of German refugees, foodstuffs, these and many more are passing through the zone, attracted by the promise that until and unless they are ready for customs entry they remain as free products. Free from Customs duties, free from excise, free from penalties and free from formal regulations affecting ordinary importations. With the knowledge that this freedom is available, the demand for zones and zone accommodations will invite prosperity to ports and to the sections they serve.

* *The Far Eastern Review*, May, 1939, "America's First Foreign Trade Zone."

Reconstruction of the Churia Tunnel in the Kingdom of Nepal

(The Engineer)

THE Kingdom of Nepal marches with North-east India for a distance of over 500 miles. It contains between 5,000,000 and 6,000,000 inhabitants. Entry into the country is rigidly restricted and apart from an occasional distinguished visitor, only the few Europeans who have official relations with the State are admitted. Connection with British India is maintained by a narrow-gauge railway, 25 miles long, from Raxaul on the Bengal North-western Railway, to Amlekgange, and thence for a further 25 miles by a motor road to Bhimphe. From the latter place goods are conveyed by a ropeway over two ranges of mountains to a point about nine miles from Katmandu, from which a metalled road leads to the capital. Travellers must cross the ranges, the summits of which are about 8,000-ft. above sea level, by the mountain tracks which lead from Bhimphe into the Katmandu basin. The level of the floor of this basin is between 4,000-ft. and 5,000-ft. above sea level. It is about 15 miles in diameter and is surrounded by a circle of hills, of which the highest peaks rise above 9,000-ft.

For the first six miles from Amlekgange the motor road winds up shallow valleys to the Churia Ridge. It crosses this ridge, at

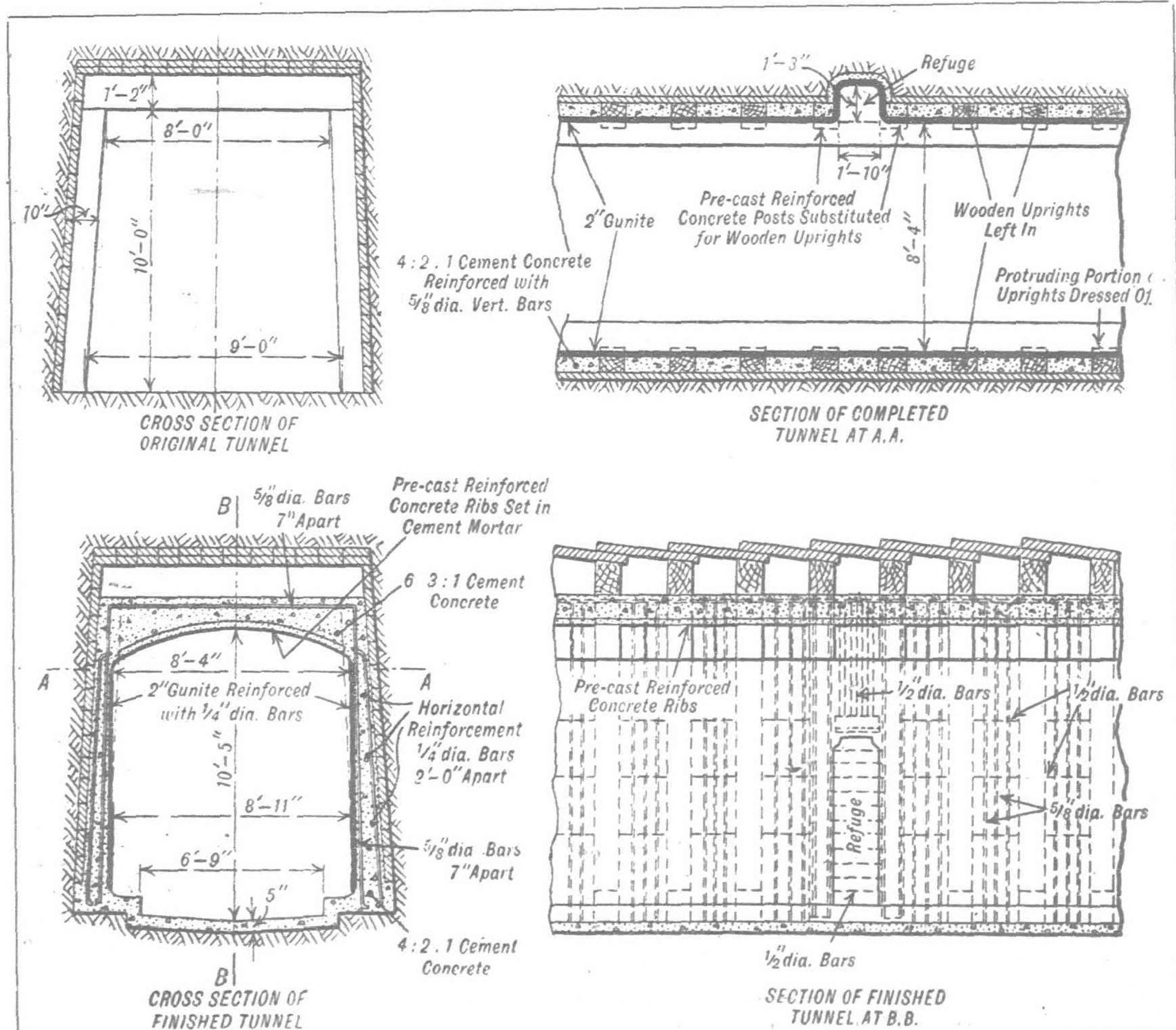


Motor road between Amlekgange and Churia

a height of about 2,500-ft. above sea level, through a tunnel about 1,200-ft. long, and then descends gradually into the Rapti Valley. The tunnel was constructed in 1926. Its cross section is shown in one of the accompanying engravings. It was designed to take a single line of motor lorry traffic. It was lined with sal timber, which commenced to rot after it had been in position for a few years, and a number of the side posts and head beams, as well as practically all the side boards have had to be replaced. The condition of the tunnel became a source of anxiety to the Nepal

Government, and the question of its improvement was referred to their consulting engineers, Messrs. Williams, Temple and Bartholomew of Westminster. The works described in this article were designed by that firm and are being carried out under their supervision.

All the heavy traffic between Nepal and British India has to go through the tunnel, and is carried between Amlekgange and Bhimphe by a fleet of lorries. It is important that this traffic should not be interrupted for more than a few hours at a time, and therefore no temporary shoring or centering in the tunnel that would encroach on the carriageway could be permitted. The clearance provided between the loaded lorries and the original tunnel was very small, and could not be reduced. The working season is very short, being restricted to the period between the end of December and the middle of March, by which time the local water supply practically falls altogether. These factors had a determining influence on the scheme of reconstruction adopted. It was decided to leave the timber lining in, supplement it by reinforced concrete panels at the sides, and construct a reinforced concrete roof. In order to allow sufficient headroom it was necessary to lower the floor. The width of the tunnel has also been slightly increased.



Original and Reconstructed Tunnel



South entrance to Original Tunnel

panels were concreted up to the springing of the arch, and the top of the concrete was brought over to form the skew backs for the arch ribs. The floor was then excavated and the concrete formed to the shape shown. The kerbs keep the lorries in the center of the tunnel and prevent any collision with the lining. Steel troughs, 12-in. wide and 3½-in. deep, were placed on the concrete in order to carry the traffic over it whilst it was green. The soffit of the arch was formed of precast reinforced concrete ribs fixed between the skew backs. Notches were cut in the vertical posts to take these ribs. When the ribs were in position the cross reinforcements were fixed and the concrete filling put in up to the underside of the wooden beams. The protruding portions of the timber side posts were dressed off so as to be flush with the concrete in the panels, a light reinforcement was attached to the posts and the sides covered with gunite, 2-in. thick. The minimum width of the tunnel after lining was 8-ft. 4-in., as against 8-ft. before lining. The height of the tunnel was increased from 10-ft. to 10-ft. 5-in.

Previously to the reconstruction foot passengers could take refuge between the posts from passing lorries, but after the lining had been put in this was no longer possible, and therefore refuges were constructed alternately on each side at intervals of 25-ft. For this purpose the wooden posts on each side of the refuges were replaced by precast reinforced concrete posts. Reinforced

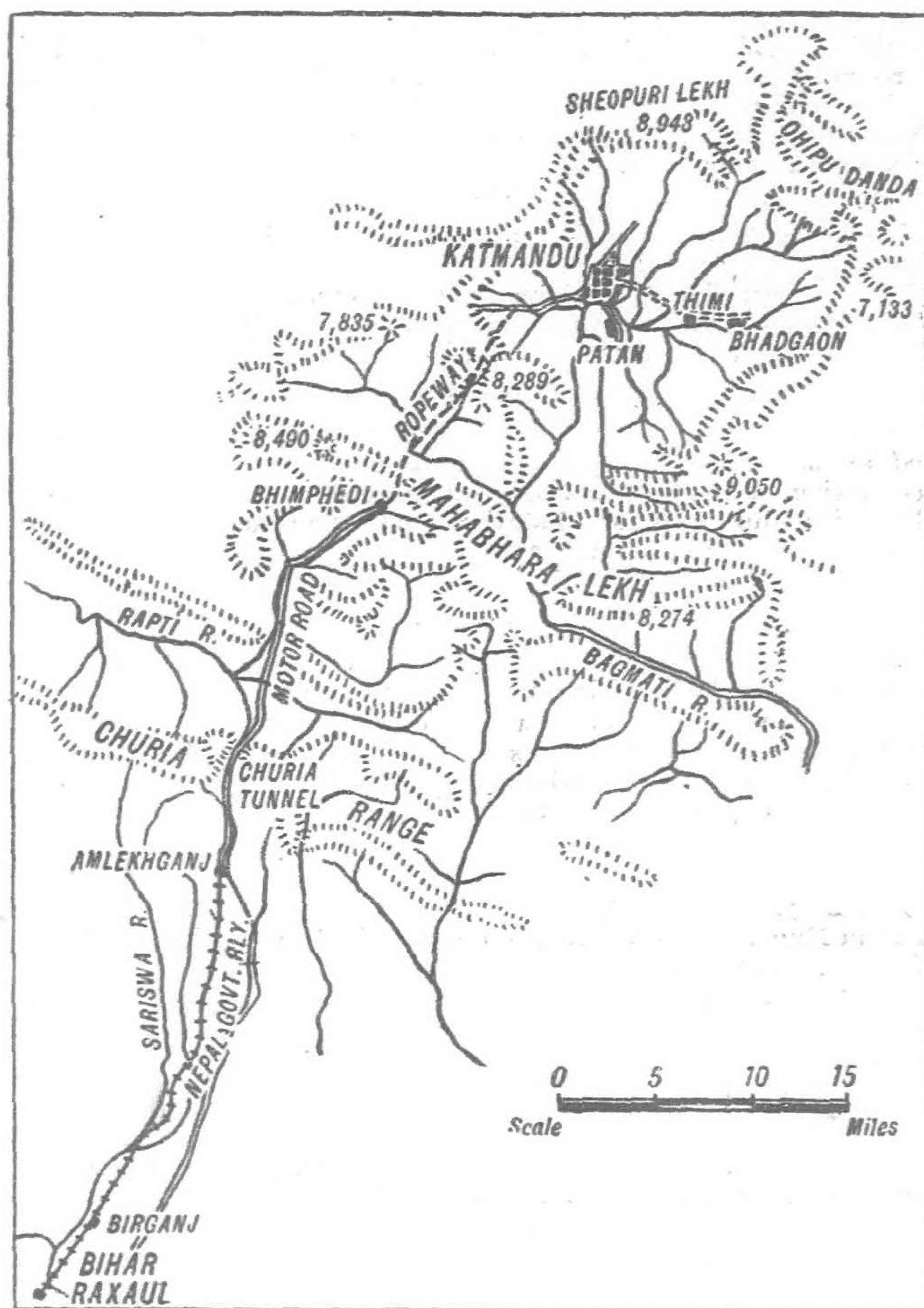
The reinforced concrete lining, as designed, is amply strong enough to withstand stresses produced by external earth pressure, and hence the timber can be allowed to decay without any danger to the stability of the tunnel.

The first operation was to excavate narrow trenches at the sides between the posts. Round steel reinforcing bars, ½-in. diameter, were fixed vertically in position, laggings were attached temporarily to the posts, the

concrete recesses were then formed 6-ft. high, 1-ft. 10-in. wide and 1-ft. 3-in. deep. The details are shown on the drawing.

The reconstruction work was begun at the beginning of this year, and when it was suspended in March the sidewalls and floor had been completed for the whole length of the tunnel, and several hundred feet of arch were finished. The remainder of the work will be done during next cold weather.

The Hindusthan Engineering and Construction Company were the contractors for the work. Unskilled labor was performed by a Company of Nepal sappers and miners. Mr. S. N. Mitra was Messrs. Williams, Temple and Bartholomew's resident engineer. The work was carried out under the control of Brigadier-Colonel Daly Jung Thapa, Assistant Director, Roads Department, on behalf of the Nepal Government.



Map of Part of Nepal

Babcock and Wilcox's Renfrew Foundries

(Continued from page 299)

are received at one end of the section and the finished cores are taken from a store of the other end for distribution throughout the foundry. Core sand is passed from its storage bin through a rotary drier to a cooling drum where a suction fan extracts all silt. The clean sand is then elevated to a hopper, whence it is measured into a skip hoist which empties into the mixing mill. Additions of oil and binder are then made to it, and after milling for seven minutes the prepared sand is dropped into service bogies for distribution to the core benches. A view in the core department is given herewith.

The cores are made by girls who work within two paths of the roller track conveyor, and the cores as finished are placed on plates and slid along the paths to the stove. This stove is of the continuous-drying type, the drying cycle being 2½ hours at a temperature of 450 deg. Fah. Cores are removed from the other side

of the stove and after inspection and repairs are ready for use. Here there are twenty-five girls and their daily output is approximately 6,000 cores. The latest type of "Coleman Core" machine has been installed and cores are also made on Jarr Ram machines.

Technical Control

All foundry materials and supplies are inspected as received and records are kept of all variables and events throughout production. Daily chemical analyses are made of all grades of cast steel and cast iron made. Similarly, mechanical tests are made from test bars cast at various times during the day. Moisture, strength, and permeability tests are carried out at regular intervals every day on the moulding sand and the results of the tests are shown clearly on blackboards in the foundries.

Engineering Notes

INDUSTRIAL

BRITISH TRADE DECLINE :—Mainly owing to the decline in purchases in Britain from Germany and Japan, imports of wearing apparel last month, at a total of £646,000, were £145,000 less than in April last year.—*Falkirk Herald*.

JAPAN BUYS SALMON EGGS :—The Canadian Department of Trade and Commerce reports that approximately 2,000 cwts. of salted Canadian salmon eggs were shipped from this port in 1938 to the Japanese market. A small quantity of partly-processed salmon eggs was exported to Germany as caviar.

WORLD'S LARGEST STOKER :—The International Combustion Company recently announced that it was completing the world's largest mechanical stoker for a firm in China. The huge stoker, which weighs 160 tons, has been especially designed for the China Light and Power Company, the British firm announced.

STEEL WORKS EXPANDS :—The Kobe Steel Works has been given permission by the Capital Control Bureau of the Bank of Japan to call in Y11,250,000 worth of unpaid shares, reports Domei. The Dai Nippon Celluloid Company will call in Y2,500,000 worth of unpaid shares, the Niigata Iron Works Y2,500,000 worth and the Okuma Iron Works Y2,000,000 worth.

KOFER GETS ORDER :—The Kofler Train Control Co., Ltd., has received an order from the Bulgarian State Railways Administration for the installation of the Kofler train control apparatus on the Sofia-Mezdra main line with equipment for 15 stations and four locomotives. An English company has now been formed and arrangements made with Tyer & Co., Ltd., for the manufacture of Kofler train control apparatus.

NEW ELECTRIC PLANT :—The Manchuria Electric Corporation will erect a 200,000 kilowatt electric power station on the outskirts of Mukden by the Hun River. It will be operated by caloric power, and coal from Fuhsein colliery will be used at the new station. Two giant dynamos have been ordered from the Shibaura Works in Japan, and that firm has ordered one from Germany, as the Shibaura plant itself is unable to manufacture two such dynamos within a limited time.

COAL LIQUEFACTION PLANS :—The establishment of a Y6,000,000 company in Manchoukuo for the production of oil by the liquefaction of coal by a German patent method was formally decided upon to-day at a Ministerial conference. The Manchoukuo Government will furnish Y4,000,000 of the capital needed and the Kobe Steel Manufacturing Company, which has obtained the working rights for the German method of production, will furnish Y2,000,000, according to local reports.

CHINA BUYS LORRIES :—A contract was signed at the Chinese Embassy in London, in March, by the Chinese Ambassador on behalf of the Chinese Government and representatives of Messrs. John Thornycroft and Co. for the supply to China of 300 fully-equipped light and heavy motor-lorries for service on the new Burma-Yunnan road. The value of the contract is £223,011, including £30,884 for spare parts and breakdown equipment. Payment is guaranteed by the Export Credits Department.—*Birmingham Post*.

CHINESE TUNG OIL :—The Dai Nippon Paint Company, of Osaka, is preparing to enter the tung oil manufacturing business. A factory in Shanghai, formerly owned by the National Government of China, but which has been "taken over" by Japanese troops and assigned to the Dai Nippon Paint Company, is now being repaired with the object of restarting. The Japanese company is confident of getting about 30 per cent of the tung nuts accumulated in Shanghai and Hankow, and hopes to handle a large part of the profitable export trade in both the oil and the nuts.

SHOWA STEEL BORROWS :—The Industrial Bank of Japan has announced the proposed flotation of the third debentures involving Y25,000,000 by the Showa Steel Works at Anshan, according to Domei. Out of this, Y8,000,000 will be underwritten by its syndicate banks and the remaining Y17,000,000 offered to public subscription with an annual 4.3 per cent interest rate. The subscription list opened for three days, commencing June 19. The issue price was Y99.70. These debentures will mature in 10 years. The works will offer its plant as mortgage for the debentures.

NEW OSAKA POST OFFICE :—The new building of the Osaka Central Post Office west of the Osaka railway station will be opened for business in August, an understanding having been reached between the Osaka communications division and the Communications Office for the continuation of the building work. The work on the structure, a ferro-concrete building of seven stories including one floor underground, was commenced in 1934 at an estimated cost of Y5,800,000. The work, however, was discontinued when it was nearing completion due to the shortage of funds resulting from the sudden rise of prices following the outbreak of hostilities in China.

TRADE MISSION IN AFRICA :—A Japanese trade delegation, whose object is to find out why imports of Japanese goods into South Africa have fallen during the past year, has arrived in Capetown preparatory to a tour of the principal towns of the Union, says Reuter's Trade Service from Capetown. "I have not come to South Africa to express opinions on trade between your country and mine, but to find out why Japanese exports to South Africa have fallen off so considerably during the past year," said Mr. Otsuka, of the Japan Federation of General Goods Exporters' Association for Africa and the Near East.

MACHINE TOOL FIRM :—A Y20,000,000 Manchuria Machine-Tool Company will be established at Mukden to supply the need for machine-tools in the development of North China, according to information received by the Osaka Prefectural Trade Museum and reported by Domei. The firm, which will be Y5,000,000 paid up at the start, will be set up as soon as permission is received from the Manchoukuo Government, reports the news agency, which says that the Manchuria Arsenal Company will be turned into an ordinary (instead of semi-governmental) concern and become the nucleus of the new company.

MINING

SHOWA PLANS EXPANSION :—The Showa Iron and Steel Works, Anshan, run by the Manchuria Industrial Development Corporation, Hsinking, has decided on an enormous increase in its capital for steel production, according to the *Miyako*. The plant already has drafted a plan calling for an increase in its production of pig iron and steel to 3,600,000 tons a year, and is making efforts for its achievement. Realization of the plan requires a capital of Y500,000,000.

ASSAM COAL RESERVES :—The coalfields of Namchik and Namphuk reports in regard to which have been received, suggest attractive reserves of about 600,000,000 tons in each area, and require further consideration before serious work can be undertaken for their development, is the opinion expressed by the Geological Survey of India on the possibilities of coal mining in Assam. These fields will probably furnish coal to northern Burma when railway communication is established through the Hukang Valley between Assam and Burma.

JAPANESE MINING PLANS :—"Japan will become a have-nation when a mining development company which is now projected by the Commerce and Industry Ministry materializes," Yoshiaki Hatta, Commerce and Industry Minister, told a *Miyako* reporter. Although details of the projected company are as yet to be decided, according to Mr. Hatta, it will be a semi-governmental corporation. Seeking new resources all over the country, from Karafuto to Taiwan, and purchasing mines abandoned due to a shortage of funds, the company will fully exploit every possible mineral resource in Japan.

TATUNG MINING OPERATIONS :—Under the leadership of 79 Japanese mining experts, more than 4,000 Chinese miners are working at the Tatung coal mine, which has made marked progress in the last year. Protected by Japanese forces, the mine is under the management of the Mongolian federated autonomous government. The Tatung coal mine measuring some 1,870 kilometers in area, is said to be almost inexhaustible. The mine's deposits calculated exceed 10,200,000,000 tons, or almost equal to the total coal deposits of Japan between Hokkaido and Kyushu, inclusive of neighboring seas.

INDIAN IRON ORE :—The Yawata Steel Works, which accounts for four-fifths of Japan's pig-iron output and controls several mines in China, in the Federated Malay States and in the Philippine Islands, has contracted for additional ore supplies with producers in French Indo-China and in British India, the *Nikkan Kogyo Shimbun* reports. The British Indian contracts involve a total of 250,000 metric tons, which are being delivered to Japanese bottoms at Calcutta and Marmagao. The ore is a hematite of 60-70 per cent purity. It is noteworthy that this is the first Indian ore imported by Yawata. A shipment of 37,000 metric tons is expected shortly from French Indo-China.

JAPAN NEEDS COKING COALS :—To meet the serious shortage of coking coals, which is largely responsible for the unsatisfactory progress of blast furnace operations since the outbreak of the Sino-Japanese hostilities, Japanese mining companies in Southern Saghalien (Karafuto) have made frantic efforts to boost the production of coal deliveries to Japan proper in 1938 are believed to have increased by 70 per cent to 1,700,000 metric tons. The collieries in Southern Saghalien are the only source of coking coal within the Japanese Empire. The bulk of the supplies comes from the Japanese concessions in Northern (Soviet) Saghalien, from French Indo-China and from North China. North China normally ranks as the most important source of supply, but owing to the wrecking and flooding of collieries by the retreating Chinese, deliveries have ceased.